Volume 1 Text

A GOLDEN AGE FOR LABOUR?

Income and wealth before and after the
Black Death in the Southern Low Countries
and the Republic of Florence
1275–1550

Sam Geens

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Inkomen en rijkdom voor en na de Zwarte Dood in
de Zuidelijke Nederlanden en de Florentijnse Republiek (1275-1550)

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the Southern Low Countries and the Republic of Florence (1275-1550)

PhD thesis submitted for the degree of
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to be defended by

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A NOTE ON CURRENCIES

During the Middle Ages, a great variance of coins was in circulation. Rulers regularly ordered to imitate popular currencies, to mint new types, or to adjust the metal contents of an existing coin. Thanks to these policies together with market forces, such as supply and demand, the values of currencies were thus continuously changing. Rather than tracking this ever-changing monetary landscape, many institutions chose to record their revenue and expenses in a single money of account, a fictional unit of measurement to which all currencies could be converted. They were usually based on the value of a real coin but were often used long after it fell out of circulation. Depending on the time and place, different monies of account were used. Throughout the thesis we have dealt with this variety by deflating prices and wages, expressing them in real terms, like the number of goods anyone could buy with his or her remuneration and the intrinsic value of coins in kilograms of silver. Nevertheless, the reader will often encounter some data expressed in money of account. It is therefore useful to highlight the most common systems and types employed in the sources:

From at least the eight century on, the majority of monies of account were composed of pounds (*ponden* in Dutch or *lire* in Italian), shillings (*schellingen* or *soldi*), and pennies (*denieren* or *denari*). Usually, a pound consisted of 20 shillings or 240 deniers. Accordingly, the relationship between the last two was 1 to 12. In this thesis, we have abbreviated them as lb. for pounds, s. for schillings, and d. for pennies.

The most common types of currency in the Late Middle Ages were silver coins. In the Southern Low Countries, many institutions employed a money of account that was based on (an imitation of) a French silver coin, either the tournois (tor.) or the parisis (par.). The former was most popular in Hainaut, whereas the latter was used in Flanders until the middle of the fourteenth century. At that point, the system was gradually replaced by the Flemish groot (gr.), which was worth twelve times as much as the parisis. To avoid confusion with the similar but cheaper Brabant groot we have added the suffixes Fl. and Br. wherever necessary.

In the Republic of Florence, institutions also made use of a silver currency, namely the moneta di piccioli. From the middle of the thirteenth century, a golden coin, named the florin or the fiorino d'oro, supplemented the system and both feature in the accounts. In the subsequent pages, all figures are reported in florins (fl.).[1]

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[1] For more information on medieval currencies, see: P. Spufford et al., *Handbook of Medieval Exchange* (London: Offices of the Royal Historical Society, 1986).

Introduction

THE FIRST HORSEMAN ARRIVES
An economic study of the Black Death

In the middle of the fourteenth century, life came to a grinding halt in Europe as the Black Death swept through one community after another. In many towns, a significant part of the population perished in a matter of months. In Florence, the cost of life was high: about three in five citizens succumbed to the plague in 1348. Like so many contemporaries, the humanist writer Giovanni Boccaccio described in his famous work, The Decameron, how even the most fundamental social relationships, those between parents and children or between wife and husband, broke down in the face of illness. Many bodies littered the streets or started to rot in houses until neighbours took notice and porters carried the corpses away to be dumped in hastily dug mass graves without any proper burial. As the world seemed to end, some people locked themselves in their homes, whereas others turned to unrestrained hedonism, drinking from dusk till dawn. Whatever reaction, all tried to avoid the sick at all costs.[2]

Almost seven centuries later, life once again came to a halt in many European towns due to a pandemic in the 2020's. This time, COVID-19 was responsible for very similar practices of social distancing and lockdowns. However, unlike the Black Death, these measures were mainly a political choice in an effort to prevent deaths rather than a hysterical reaction to mass mortality. Even though the nature of the disease (e.g. a virus with a far lower case fatality rate than the plague microbe) and the organization of society differed fundamentally from their fourteenth-century counterparts, comparisons between the two proliferated almost immediately in popular press in the hope to better understand how the ongoing pandemic could impact life. While articles initially focused on the immediate consequences, such as the history of quarantine, they gradually gave way to questions of long-term effects as the peak of infection had passed and lockdowns were eased. A great many of them turned their attention towards the economic impact. For instance, Eleanor Russell together with Martin Parker as well as Guido Alfani hypothesised an increase in global wealth inequalities, albeit the former authors believed such an evolution manifested itself in the aftermath of the Black Death while the latter pointed out how the opposite actually transpired. Alfani believed that the Late Middle Ages could not serve as a model for the present as the mechanisms governing

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[2] G. Boccaccio, *Decameron*, trans. J. Payne and C.Ó. Cuilleanáin (Hertfordshire: Wordsworth Editions Limited, 2004), 5-13. On the theme of abandonment, see Samuel Cohn Jr., "Plague violence and abandonment from the Black Death to the early modern period," *Annales de démographie historique* 134, no. 2 (2017).

the distribution of wealth have changed fundamentally over time.[3] In another example, Matthew Tobin Anderson reflected about the evolving attitudes towards work. According to him, the fourteenth century witnessed widespread uprisings as labourers, bolstered in their bargaining position by mass mortality, clashed with elites who tried everything in their power to restrict wage increases and occupational mobility. In the twenty-first century, the rising cost of living, stagnant wages, and difficult working conditions during the pandemic have led to similar tensions on the labour market with mass resignations as a result.[4] Although the current research predated the outbreak of COVID-19 and the interest in the plagues of the late medieval period were born foremost out of scholarly interest, those type of questions about the interplay between pandemics and living standards are very much at the heart of this thesis. In the following pages, we will explore how income, wealth, and, to a lesser extent, consumption evolved during these turbulent times in the Southern Low Countries and the Republic of Florence.

I.1 From the end of the world to a world with no end

The Late Middle Ages are characterised by an apparent paradox. Just as in the triptych by the Flemish Primitive Hieronymus Bosch, depicted on the cover of this thesis, images of suffering and unimaginable horror that seem to herald the Last Judgement can be juxta positioned to scenes of a paradise filled with abundance and earthly delights. On the one hand, the Black Death and the subsequent plague waves, visiting European communities at least once per generation, significantly lowered life expectancy, stressed social relations, and reshaped cultural notions. The sudden, catastrophic loss of lives also triggered a prolonged period of economic contraction. In a productive system that was predominantly reliable on the input of manpower, mass mortality negatively impacted output. To compound the misery, warfare and harvest failures were regular events. For instance, the fourteenth century witnessed the beginning of the devastating Hundred Years Wars and the occurrence of the Great Famine, one of the worst subsistence crises ever to hit Northwestern Europe. On the other hand, the late medieval period is often associated with unprecedented prosperity and wealth. The number of inheritances per person peaked in the wake of a pandemic. Where families had to divide the assets of a deceased kin among several members in normal years, plague often

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[3] Eleanor Russell and Martin Parker, "How pandemics past and present fuel the rise of large companies," in *Conversation Insights* (The Conversation, 2020); G. Alfani, "The economic consequences of plague: lessons for the age of Covid-19," in *Policy Papers* (History and Policy, 2020).

[4] M.T. Anderson, "In Medieval Europe, a Pandemic Changed Work Forever. Can It Happen Again?," *The New York Times*, 16 February 2022.

wiped-out multiple members of the household, leaving far fewer beneficiaries. Furthermore, houses, money, and land remained unaffected by plague, which greatly increased their availability relative to the diminished population. Prices of these capital goods plummeted consequently, deeply cutting the profits of the elites who had been the main owners of such assets. At the other end of the social spectrum, shortages in the labour forces allowed workers to demand higher levels of remuneration. Long-term series reveal how wages of construction and agricultural workers increased rapidly almost everywhere in Europe after the Black Death. Concomitantly, the price of foodstuff fell sharply. Up until the sixteenth century, the level of real wages remained high and would not be achieved again before the era of industrialization. Accordingly, many scholars have labelled the second half of the fourteenth and the fifteenth century as a Golden Age for labour.

The economic effects of plague were already described by contemporary chroniclers and poets. The dual impact of increased wages and inheritances was a regular topic. For example, Gilles Li Muisis, abbot of the Saint Martin abbey, stated that "due to the high mortality [...] many of the surviving manual workers were enriched by the possessions of the dead, while the others wanted a high price for their work."[5] Likewise, the influential French composer, Guillaume de Machaut, put into verse how "some gave triple salary; but not for one denier was twenty [enough]; since so many were dead."[6] The Florentine chronicle of Marchionne di Coppo Stefano notes that "the number of houses full of goods that had no owner [...] was amazing. Then the heirs [...] turn up and someone who had previously had nothing suddenly found himself rich [...]. Both men and women began to show off with clothes and horses."[7] This last remark brings another important characteristic of the Golden Age to the front. Lower classes did not simply earn more income and acquire more wealth, they also used these newly found funds to purchase goods that were out of their reach before. In a first phase, such goods mainly consisted of a richer and more diversified diet as well as better living conditions. For instance, meat consumption increased so much everywhere that scholars have labelled the Late Middle Ages as the origin of a "carnivorous Europe".[8] The fifteenth-

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[5] As cited in W. P. Blockmans, "The social and economic effects of plague in the Low Countries : 1349-1500," *Revue belge de philologie et d'histoire* 58, no. 4 (1980): 845-46.

[6] Translated in D. Herlihy, *The Black Death and the Transformation of the West* (Cambridge: Harvard University Press, 1997), 41. Original citation in French in M. Lucenet, *Les grandes pestes en France* (Montaigne: Aubier, 1985), 45.

[7] Translation by Jonathan Usher, "Florentine Chronicle of Marchionne di Coppo di Stefano Buonaiuti (1327-1385)," in *Decameron Web* (Italian Studies Department's Virtual Humanities Lab at Brown University).

[8] Wilhelm Abel, "Wandlungen des Fleischverbrauchs und der Fleischversorgung in Deutschland seit dem ausgehenden Mittelalter," *Berichte über Landwirtschaft. Zeitschrift für Agrarpolitik und Landwirtschaft* XII, no. 3 (1937); F. Braudel, *Civilisation matérielle et capitalisme, XVe-XVIIIe siècles* (Paris: Librairie Armand Colin, 1967); Tim Soens and Erik Thoen, "Vegetarians or carnivores? Standards of living and diet in late medieval Flanders," in *Le Interazioni fra economia*

century French diplomat Gilles le Bouvier even lambasted the Flemish for consuming great quantities of meat, fish, milk, and butter.[9] Once primary needs were fulfilled however, households also turned their attention to none-essential and luxury goods. In the process, many objects, such as dresses, lost their power as signifiers of social standing and a new material culture based on taste and knowledge rather than intrinsic value emerged.[10] As the material Renaissance unfolded, people developed new attachments to objects. Last wills and testaments in Italy and the Low Countries reveal how testators bequeathed friends and family with very specific and often mundane items, like drinking cups or handkerchiefs, implying that the emotional value connected to the previous owner was more important than the monetary value. In addition, testators began to stipulate how goods should be governed by the beneficiaries after their death.[11]

These above evolutions showcase how living standards are determined by the complex and close interaction between income, wealth, and consumption. The level of income restricted how many goods a household could purchase. Inherited lands provided a steady form of revenue, either in cash or kind. The acquisition of silver objects, such as platters and spoons, was as much a part of the medieval material culture as it was a source of wealth. Yet, despite this large overlap, the nature of the relationship was never fixed and continuously evolved, not only over the course of individual lives but also profoundly over time. Many townsmen actively invested in rents as a financial security for their old age, transferring wealth into income. Houses and land could be sold off in times of need, temporarily increasing the potential for consumption at the cost of future revenue. The desire to achieve a certain lifestyle, such as the consumption of meat, may have helped to push industriousness and thus income without expanding the patrimony. In sum, there is no guarantee that all three variables always evolved in the same direction. If we want to truly understand how the Black Death and subsequent plague waves resulted in a Golden Age for labour, we thus need to assess the changes in income, wealth, and consumption together.

e ambiente biologico nell'Europa preindustriale secc. XIII-XVIII, ed. Cavaciocchi Simonetta (Firenze: Firenze University Press, 2010).

[9] Peter Arnade, *Realms of Ritual: Burgundian Ceremony and Civic Life in Late Medieval Ghent* (Cornell University Press, 1996), 34.

[10] For a good sample of this extensive historiography, see: Bruno Blondé and Wouter Ryckbosch, "In 'splendid isolation'. A comparative perspective on the historiographies of the 'material renaissance' and the 'consumer revolution'," *History of Retailing and Consumption* 1, no. 2 (2015).

[11] Martha C. Howell, "Fixing movables: Gifts by testament in late medieval Douai," *Past & Present* 150, no. 1 (1996); Samuel Cohn, "Renaissance attachment to things: material culture in last wills and testaments," *The Economic History Review* 65, no. 3 (2012).

Obviously, we could, as some scholars have suggested, add even more variables to the above idea of living standards, like life expectancy, safety, environmental quality, etc.[12] On some of these aspects, such as social cohesion or subjective well-being, the Late Middle Ages scored extremely worse than other periods judging from the earlier given description by Giovanni Boccaccio. In the eyes of contemporaries who had just lost half of their friends and family members, the fourteenth century was undoubtedly anything but golden. Faced with so much inexplicable death, some turned to religious fanatism and joined one of the many processions of Flagellants, chastising themselves in the hope to calm God's wrath.[13] Others turned to excessive drinking, gambling, and whoring as a way to escape from reality. Still others turned to violence. Looking for a scapegoat, they chiefly targeted Jewish communities. The mass persecution and burning of Jews in the immediate aftermath of the Black Death remains one of the darkest pages in European history.[14] Despite the importance of these social and cultural traumas, we limit ourselves to the economic impact of plague within the scope of this thesis. The focus on income, wealth, and consumption provides a robust image of material well-being before and after the Black Death, a very specific but important part of living standards.

Scholarly interest in medieval living standards already emerged in the nineteenth century as economists delved into the history of prices and wages in the hope to give better informed policy advice. Most famously, Thorold Rogers pioneered the field by collecting and publishing a wealth of data for premodern England in twenty different volumes. He is often credited to be the first one to have coined the term of the late medieval Golden Age when he wrote that "the fifteenth century and the first quarter of the sixteenth were the golden age of the English labourer, if we are to interpret the wages which he earned by the cost of the necessaries of life. At no time were wages, relatively speaking, so high, and at no time was food so cheap."[15] However, Karl Marx may be a serious contender to the title as he remarked in his *Grundrisse der Kritik der Politischen Ökonomie* that "only in the period of the decline and fall of the feudal system, but where it still struggles internally – as in England in the fourteenth and first half of the fifteenth centuries – is there a golden age for labour in the process of

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[12] R.C. Allen, T. Bengtsson, and M. Dribe, *Living Standards in the Past: New Perspectives on Well-Being in Asia and Europe* (Oxford: Oxford University Press, 2005); Maïka De Keyzer, "How was city life? Moving beyond GDP and real income to measure pre-modern welfare and inequality levels," in *Inequality and the city in the Low Countries (1200-2020)*, ed. Bruno Blondé, et al., Studies in European Urban History (1100-1800) (Turnhout: Brepols, 2020).

[13] Robert E Lerner, "The Black death and Western European eschatological mentalities," *The American Historical Review* 86, no. 3 (1981).

[14] Samuel K. Cohn, "The Black Death and the Burning of Jews," *Past & Present*, no. 196 (2007).

[15] Cited and credited in J. Hatcher, "Unreal Wages: Long-run living standards and the 'Golden Age' of the fifteenth century," in *Commercial Activity, Markets and Entrepreneurs in the Middle Ages*, ed. B.; Dodds and C. Liddy (Woodbridge: Boydell Press, 2011).

becoming emancipated."[16] The manuscript dates back to 1858, almost three decades before the quote of Rogers, but would not be published until 1939. Whatever the precise origin of the term, the two examples show that scholars have from the very inception of the academic field identified the Late Middle Ages as one of exceptional living standards.

Over the more than hundred years following Rogers and Marx, the appreciation of the Golden Age for labour has hardly changed. In the early nineteenth century, more quantitative data for different regions were collected and seem to support the earlier findings. For instance, in 1935, Wilhelm Abel reiterated "das goldene Zeitalter der Handwerker" in his famous study of agricultural evolutions.[17] In the following decades, methodologies to measure living standards became more complex, but the conclusions remained firm. In their seminal article of 1956, Phelps Brown and Hopkins published a graph spanning the long-term evolution of daily wages for English construction workers expressed in the number of consumer baskets said remuneration was able to buy.[18] For the first time, the extent of the Golden Age could be grasped in the blink of an eye. The image of a lonely fifteenth-century mountain looming over the premodern period has been etched in the memory of generations of economic historians (see Figure I.1). Other scholars followed suit and some five decades later Robert Allen compiled all available series into a single picture for Europe. While his comparison brought new insights on the timing of a structural break in economic growth paths between north-western and Southern Europe, the so-called Little Divergence, the Late Middle Ages remained largely undiscussed because the trend seemed similar across all communities. Subsequently, the universal positive impact of the Black Death on living standards was once again reaffirmed. In most recent years, historians have tried to push the methodology ever further by moving from individual daily wages to household annual wages. Even though the lonely mountain has lost some of its height, the notion of a Golden Age still stands tall to this date.[19]

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[16] Karl Marx, *Foundations of the Critique of Political Economy*, trans. Martin Nicolaus (2015), notebook V.

[17] Wilhelm Abel, *Agrarkrisen und Agrarkonjunktur. Eine Geschichte der Land- und Ernährungswirtschaft Mitteleuropas seit dem hohen Mittelalter* (Berlin: Paul Parey, 1966), 59.

[18] E. H. Phelps Brown and Sheila V. Hopkins, "Seven Centuries of the Prices of Consumables, Compared with Builders' Wage- Rates," *Economica* 23, no. 92 (1956).

[19] Sara Horrell, Jane Humphries, and Jacob Weisdorf, "Beyond the male breadwinner: Life-cycle living standards of intact and disrupted English working families, 1260–1850," *The Economic History Review* 75, no. 2 (2022).

FIGURE I.1 REAL WAGES OF CONSTRUCTION WORKERS IN SOUTHERN ENGLAND

CHANGES IN THE EQUIVALENT OF THE WAGE RATE OF A BUILDING CRAFTSMAN EXPRESSED IN A COMPOSITE PHYSICAL UNIT OF CONSUMABLES IN SOUTHERN ENGLAND, 1264-1954
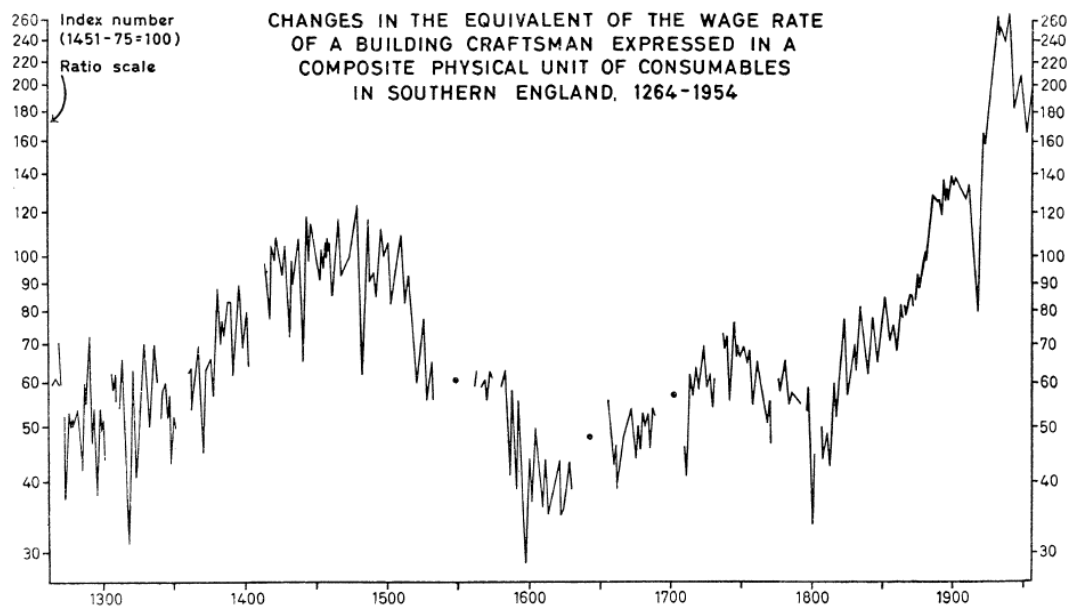
Sources: Phelps Brown and Hopkins, "Seven Centuries of the Prices", *Economica* 23, no. 92 (1956), 302.

Remarkably, the study of living standards has been relatively one-sided for a long time. As we have just read, scholars have mainly focused on reconstructing income. The study of wealth and consumption has lagged severely behind. Naturally, historians haven't been completely blind to these topics, but they are relatively recent fields of research in comparison to income. The history of consumption started to develop from the 1970's when consumerism (re)gained its positive image in everyday life.[20] Objects were seen as an integral part of someone's identity and thus as a lens through which (historic) societies could be learned. For the Late Middle Ages, the groundwork for such an approach was laid in the 1980's thanks to pioneering studies by Richard Goldthwaite and Christopher Dyer.[21] They revealed how material culture and the way people interacted with it changed fundamentally during the fourteenth and fifteenth century (cfr. supra). Diets, home interiors, dresses, etc. became richer and more diversified in households of varying socio-economic backgrounds. The evolution seems to corroborate the idea of a Golden Age for labour, but the evidence is too scant to allow for such a bold generalisation. The main sources, namely probate inventories,

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[20] Frank Trentmann, ed. *The Oxford Handbook of the History of Consumption* (Oxford: Oxford University Press, 2012), 1-3.
[21] R.A. Goldthwaite, "The Renaissance economy: the preconditions for luxury consumption," in *Aspetti della vita economica medievale* (Firenze: Istitutio di storia economica, università degli studi Firenze, 1985); C. Dyer, *Standards of Living in the Later Middle Ages: Social Change in England C.1200-1520* (Cambridge University Press, 1989).

primarily pertain to the wealthy. Even in the best studied case, the Italian Renaissance, the question of social permeability has remained largely unanswered.[22] Moreover, the comparison with the period before the Black Death has been difficult as probate inventories are extremely rare for this period. Supportive evidence from alternative disciplines, like archaeology or art history, is often too fragmented in time and space to distinguish clear evolutions.

Off all the three variables, wealth has witnessed the least scholarly focus. Its study is often a corollary of research into economic inequalities, a topic that inspired many projects in the 1960's and 1970's. The extensive processing of the Florentine *catasto* or cadastre by David Herlihy and Christiane Klapisch-Zuber is probably the most prolific of these efforts to reconstruct the distribution of wealth across entire communities and regions.[23] They uncovered a region characterised by high levels of wealth inequalities. Based on earlier tax records for a few communities, Herlihy believed that disparities had widened after the Black Death because the increase in inheritances per capita disproportionally benefitted those at the top thanks to their larger estates.[24] Yet, taxation lists proved labour intensive to process and difficult to compare, which eventually tempered the earlier enthusiasm. The following four decades, the study of economic inequality took a back seat. It was however catapulted back to the top of political and academic agendas in the wake of rapidly increasing inequalities after the financial crisis of 2008-2009. This time, Guido Alfani and other scholars proved more successful in reconstructing long-term trends.[25] Contrary to Herlihy, Alfani found an almost universal decline in wealth inequalities after the Black Death in the whole of Europe, albeit the number of observations still remain limited, especially outside the Italian peninsula. Just like the history of consumption, these conclusions seem to suggest that lower classes were able to secure a better position in society though a direct link with income is uncertain. The focus on the relative rather than the absolute evolution of wealth has obscured whether declining inequality was caused by the increasing fortunes at the bottom or by losses at the top.

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[22] Cohn, "Renaissance attachment to things: material culture in last wills and testaments."; Blondé and Ryckbosch, "In 'splendid isolation'."

[23] D. Herlihy and C. Klapisch-Zuber, *Les Toscans et leurs familles: une étude du "catasto" florentin de 1427* (Paris: Fondation nationale des sciences politiques : École des hautes études en sciences sociales, 1978).

[24] D. Herlihy, "The distribution of wealth in a Renaissance community: Florence 1427," in *Towns in societies. Essays in economic history and historical sociology*, ed. P. Abrams and E.A. Wrigley (Cambridge: Cambridge University Press, 1978).

[25] For a most recent overview, see: Guido Alfani, "Epidemics, Inequality, and Poverty in Preindustrial and Early Industrial Time," *Journal of Economic Literature* 60 (2022).

Although all three discussed histories seem to hint at a similar positive evolution of living standards, the concept of a Golden Age for labour hasn't been without criticism. Remarks about inheritances and the high rewards for labour were but one of the many narratives found in contemporary chronicles. According to the Florentine Matteo Villani, plague did not bring prosperity. He described in 1363 how "it was thought that, given the lack of people, there ought to be a wealth of all the things which the earth produces. On the contrary, through men's ingratitude an unprecedented scarcity affected everything, and this continued for a long time. In certain lands, as we shall narrate, there were severe and unprecedented famines."[26] Likewise, the already mentioned Gilles Li Muisis witnessed how "in countless places, the vineyards and the land remained uncultivated for want of labour forces. [...] That is why corn, wine, all food and even all kinds of other commodities became very expensive from Christmas onwards."[27] Both authors point at subsistence crises caused not by harvest failures, but by the refusal of people to work. The situation is reminiscent of and probably connected to the moral lessons entailed in the allegorical poem of Pier Plowman, composed a quarter century later. In the poem, lazy farm labourers make up excuses to avoid work until the personification of hunger comes along and forces them to toil on the fields.[28] This type of narrative sources has led some scholars to believe that medieval household had a strong leisure preference: they only worked until they had attained a certain predetermined level of income befitting his social status. In this perspective, rising daily wages had little effect on living standards as any increase was compensated by an equal change in leisure time.[29] The evolution of the work time is however rarely included in real wage series.

Limitations to the increase of living standards did not only originate from below but were often also dictated by the elites. In many places, governments tried to control wages and occupational mobility through legislation. Most famously, the Ordinance of Labourers in 1349 and the Statute of Labourers in 1351 prohibited the payment of wages above pre-plague levels in England. Subsequently, the text details the rates to be paid for a variety of tasks. Furthermore, the statute proclaimed that every able-bodied man and woman below the age of 68 years had to work if they were unable to take care for themselves. Employers who had been in service before the outbreak were obliged to remain in the same workplace. Provençal laws included very similar stipulations but also fixed the prices of commodities, such as those

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[26] Cited in Herlihy, *The Black Death and the Transformation of the West*, 46-47.

[27] Cited in Blockmans, "The social and economic effects of plague in the Low Countries : 1349-1500," 846.

[28] Christopher Dyer, "Piers Plowman and Plowmen: A Historical Perspective," *The Yearbook of Langland Studies* 08 (1994).

[29] See for example the case of farmer-miners in Ian Blanchard, "Labour Productivity and Work Psychology in the English Mining Industry, 1400-1600," *The Economic History Review* 31, no. 1 (1978).

for twelve different types of shoes or various cuts of meat.[30] A different body of laws targeted the consumption rather than the income side. Sumptuary laws restricted the type and quality of goods certain social classes could purchase, especially in regard to dress. In 1363, for instance, the English parliament proclaimed that only wealthy knights and clerics were able to wear linen in the summer. In Florence, from 1356 on, women could only have as many buttons on their clothes as there were corresponding buttonholes.[31] Although specific stipulations differed greatly, they all served the same goal: officials sought to maintain social order through fixating the consumption or income of groups. Rising wages entailed the risk that households would live above their station given by God. If everyone was wearing scarlet, how was anyone going to recognise the king? In practice, few of the aforementioned laws were effective in the long-term and are more indicative of a struggling elite. Nevertheless, they could have very real effects in the short-term judging from the thousands of court records preserved in archives across Europe.[32]

The most profound critique on an idea of a Golden Age for labour pertains to its primary evidence, namely the daily wages of agricultural and construction workers. Most notably, John Hatcher has questioned its representativeness. In the Late Middle Ages, few people depended on daily wages. Instead, they were paid by the piece or were self-employed. Even in the most urbanised regions of Europe, more than half of the population still spent most of their time toiling their fields. For them, the decline in the price of foodstuff was not necessarily a positive evolution because it determined both part of their expenses and their income. Hatcher does not go as far as denying any positive evolution of living standards during the fourteenth and fifteenth century, but he does show that the extent of gains potentially differed wildly between social classes. Based on modelled peasant budgets, he suggests that the relative increase in income for farmers owning 10 acres (i.e. 4 hectares) was only half as great as that of landless labourers. At the same time, the distribution of land among the English population had probably changed fundamentally between his two benchmark periods as land became more abundant in the wake of demographic decline. In addition, he believed that the greater gains of the landless poor were predominantly spent on a better diet and living conditions, which consequently did not give impetus to a kind of

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[30] S.K. Cohn, "After the Black Death: Labour Legislation and Attitudes Towards Labour in Late-Medieval Western Europe," ibid.60, no. 3 (2007).

[31] Maria Giuseppina Muzzarelli, "Reconciling the privilege of a few with the common good: sumptuary laws in medieval and early modern Europe," *Journal of Medieval and Early Modern Studies* 39, no. 3 (2009); Laurel Ann Wilson, "Common Threads: A Reappraisal of Medieval European Sumptuary Law," *The Medieval Globe* 2, no. 2 (2016).

[32] See for example in the case of the Statute of Labourers: Paul Booth, "The Enforcement of the Ordinance and Statute of Labourers in Cheshire, 1349 to 1374," *Archives: The Journal of the British Records Association* 39, no. 127 (2013).

consumer revolution described earlier.[33] In this sense, the new material culture must have been confined to the rich. By looking at the changing access to land and the evolving patterns of consumption, Hatcher once again demonstrates the importance of looking at income, wealth, and consumption as a whole.

The leisure preference of medieval workers, the attempts of elites to curb the social impact of plague, and the reservations made by Hatcher raises some important questions about the Golden Age for labour. Living standards may certainly have improved after the Black Death, but it is highly doubtful that the daily remuneration of a very specific minority can adequately capture the experience of the whole social strata. As certain groups, such as officials, reacted to the changing economic conditions, opportunities may have opened up in some locations whereas they were shut down in others. It would be incredibly naïve to believe that plague had the same effect everywhere for everyone. Yet, that is precisely what the notion of a Golden Age has projected on the minds of economic historians for more than a century and half: mortality was so high that all labourers must have been better rewarded and all survivors could count on larger inheritances. In contrast, this thesis will explore the variation in living standards across different groups in the two leading regions of Europe at that time, namely the Southern Low Countries and the Republic of Florence. Through a social and geographical comparison, we will not only uncover the true scope of the Golden Age for labour, but also explain why it precisely came about. It allows us to answer some of the questions scholars, policy makers, and the public have posed themselves in the wake of COVID-19: who benefits from a pandemic? How do attitudes towards work, leisure and consumption change afterwards? To what extent do pandemics and the related mortality spikes possess transformative powers by themselves? Or are we able to steer (some of) their impact through existing structures and institutions? The study of the Late Middle Ages does not offer us a clear guide to the future, but it can certainly help to better our understanding of the potential mechanisms at play.

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[33] Hatcher, "Unreal Wages: Long-run living standards and the 'Golden Age' of the fifteenth century." See also a revised version in John Hatcher and Judy Z. Stephenson, eds., *Seven Centuries of Unreal Wages. The Unreliable Data, Sources and Methods that have been used for Measuring Standards of Living in the Past.* (Cham: Palgrave Macmillan, 2018).

I.2 Plague and places

The Black Death refers to the first plague wave of the late medieval pandemic or the so-called second plague pandemic. Subsequent waves or epidemics afflicted Eurasian societies until the nineteenth century, though few would be as deadly and widespread as the first one. Plague is caused by the bacteria *Yersinia Pestis*, which is normally found among fleas living off wild rodents. The bacteria obstruct the digestive system of the fleas, causing them to enter a feeding frenzy and to vomit, which injects the disease into the animal. Due to changes in the rodent population, infected fleas may jump to new hosts, including humans. Once bitten, humans may develop three different variants of the disease. The distinct symptoms of all these variants have been described by chroniclers writing about the Black Death. Most commonly, plague affects the lymph system and buboes will develop within a few days. Like many of his contemporaries, the Franciscan friar John Clynn wrote in 1348-49 that "many died of boils, abscesses and pustules which erupted on the legs and in the armpits."[34] He would succumb to plague himself shortly after. The case fatality rate (i.e. the chances of dying when infected) for bubonic plague is indeed quite high, namely 30% to 60% for the present strain. On the other hand, human-to-human transfer is relatively rare. Accordingly, scholars believe that the spread of medieval plagues was mainly caused by regular flea jumps from rodents living in human environments, such as black rats, though the debate is still undecided about the precise vector.[35] Over time, bubonic plague may evolve into its pneumonic variant when it affects the lungs. Alternatively, a flea bite may directly infect the respiratory system. Death is virtually certain and transmission rates very high due to the presence of *Yersinia Pestis* in droplets during coughing. A letter sent by the Flemish monk Lodewijk Heyligen in 1348 aptly summarised: "all those who died suddenly had infected lungs and had been coughing up blood. And this form is the most dangerous of all these terrible things, which is to say that it is the most contagious."[36] Only in rare cases, plague enters the bloodstream directly. This septicaemic variant is the deadliest of all but is seldom contagious given that it requires the transmission of infected blood.[37] Symptoms are more difficult to distinguish as they are rather generic or even absent. Guglielmo Cortusi, a Paduan judge who wrote a chronicle between 1310 and 1358, remarked how "some people fell asleep and never woke up, but passed away."[38] Only in later stages, more serious and prolific symptoms develop. In

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[34] Rosemary Horrox, *The Black Death*, Manchester Medieval Sources series (Manchester: Manchester University Press, 1994), 84.

[35] James Belich, *The World the Plague Made: The Black Death and the Rise of Europe* (Princeton: Princeton University Press, 2022), 53-78.

[36] Horrox, *The Black Death*, 42.

[37] World Health Organization, "Plague: fact sheet," https://www.who.int/news-room/fact-sheets/detail/plague.

[38] Horrox, *The Black Death*, 35.

his treatise on plague of 1382, the French physician Raymond Chalin described how some patients bled from their nose and rectum or experienced haematuria. They usually died the same or next day.[39]

The second plague pandemic emerged in Europe around the year 1346, but its origins spread far beyond these geographical and temporal boundaries. Traces of *Yersinia Pestis* among humans can be dated back as early as 5,000 years ago.[40] Analyses of ancient DNA show that some strains of the bacteria infected multiple communities across Eurasia during the Late Neolithic and Bronze Age, sometimes within the timespan of a few centuries, but it is still unclear whether any of these events should be regarded as a pandemic.[41] For some scholars, the concomitant population decline in many larger settlements of western Eurasia around 3,000 BC, known as the Neolithic Decline, is at least suggestive.[42] The first documented plague pandemic relates to several waves in the period between the fifth and eight centuries AD. The initial outbreak, known as the Justinianic Plague after the Byzantine Emperor who contracted the disease, is first reported in the Egyptian port of Pelusium in 541. In subsequent years, plague spread across the entire Mediterranean world and beyond, such as the Irish kingdoms to the north and the Sassanid Empire to the east. Following waves became less virulent and more localised, before disappearing completely for unknown reasons.[43] Contemporary accounts place the direct origin of the pandemic somewhere in Africa, but modern molecular biologists have not yet uncovered an ancestral strain of *Yersinia Pestis* related to those found in the Byzantine Empire in this continent. Instead, the Justinian plague lineage seem to have mutated from a basal strain found in the area of the Tian Shan mountains in the second to third century, but the current data is still inconclusive about the precise route it would take in the following centuries before arriving in Pelusium.[44] Interestingly, recent historical, archaeological, and genomic evidence seem to point at a similar place of origin for a different lineage that was responsible for the second pandemic. Burial sites in northern Kyrgyzstan revealed a spike in mortality around 1338-39 that could

[39] G. Twigg, *The Black Death: A Biological Reappraisal* (New York: Schocken Books, 1985), 207.

[40] Julian Susat et al., "A 5,000-year-old hunter-gatherer already plagued by Yersinia pestis," *Cell Reports* 35, no. 13 (2021).

[41] Aida Andrades Valtueña et al., "The Stone Age Plague and Its Persistence in Eurasia," *Current Biology* 27, no. 23 (2017); Pooja Swali et al., "Yersinia pestis genomes reveal plague in Britain 4,000 years ago," (2022).

[42] Nicolás Rascovan et al., "Emergence and Spread of Basal Lineages of Yersinia pestis during the Neolithic Decline," *Cell* 176, no. 1 (2019).

[43] W. Rosen, *Justinian's Flea: Plague, Empire and the Birth of Europe* (London: Pimlico, 2010); Peter Sarris, "Viewpoint New Approaches to the 'Plague of Justinian'*," *Past & Present* 254, no. 1 (2021).

[44] Peter de Barros Damgaard et al., "137 ancient human genomes from across the Eurasian steppes," *Nature*, no. 557 (2018); M. Keller et al., "Ancient Yersinia pestis genomes from across Western Europe reveal early diversification during the First Pandemic (541-750)," *The Proceedings of the National Academy of Sciences of the United States of America* 116, no. 25 (2019).

be associated with a strain of *Yersinia Pestis* in ancient DNA that is, up to now, the most recent ancestor of the Black Death bacteria.[45] However, just as with the historiography of the Justinianic Plague, the precise chronology and spread of the disease from the Tian Shan mountains is still inconclusive. Some scholars believe that the lineage of the first pandemic branched off during the first decades of the fourteenth century, just prior to the outbreak in northern Kyrgyzstan, whereas others suggest that this strain of plague already circulated in thirteenth-century China and western Iran, Iraq, and Syria.[46] What is clear, is that the Black Death afflicted the lands of the Golden Horde by 1346, from where it subsequently spread both over land and sea to the Mediterranean Basin (1347-48), Western, Northern and Central Europe (1348-50), and lastly Eastern Europe (1349-53).[47]

Due to the scarcity of reliable quantitative sources on medieval demography, mortality rates for the Black Death are difficult to reconstruct and are often subject to large margins of errors. For a long time now, historians have believed the cost of life to be around a fourth to a third of the total population, a dramatic decline when attributed to a single event. However, more recently, Ole Benedictow has systematically gathered mortality data from circa 300 demographic studies pertaining to localities and regions across Europe to advance an even higher estimate. According to him, between 60% and 65% of the population perished between 1346 and 1353.[48] In this context, the many contemporary references to the end of the world (cfr. supra) should be interpreted as a reflection of a common and justified anxiety instead of a medieval literary topos used during moments of crisis. Yet, the end never came. Quite to the contrary, the pandemic had only begun. A second epidemic, called *pestis secunda*, engulfed much of Europe and North Africa between 1356 and 1366. Its origins may be situated in plague reservoirs of Central Germany and/or in southern Russia depending on how many lineages of the bacterium were involved.[49] With a mortality rate of about 20%, the demographic impact was less severe than the Black Death yet still very significant for a decimated population. Several chroniclers refer to *pestis secunda* as the plague of children (*pestis puerorum*) because it seems to have disproportionally affected the young. Possible

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[45] Maria A. Spyrou et al., "The source of the Black Death in fourteenth-century central Eurasia," *Nature*, no. 606 (2022). There is currently no evidence of an eastern spread as we have no clear historical mentions of fourteenth-century bubonic plague epidemics in China or India. Nevertheless, there is some speculation about such events. See for example,

[46] Robert Hymes, "Buboes in Thirteenth-Century China: Evidence from Chinese Medical Writings," *The Medieval Globe* 8, no. 1 (2022); Monica Green, "Putting Asia on the Black Death Map," ibid.

[47] O.J. Benedictow, *The Complete History of the Black Death* (Woodbridge: Boydell Press, 2021), map 1 and part III.

[48] This estimate was already advanced in the 2004 edition of Benedictow's book, but the recent 2021 edition contains data from an additional hundred studies and seems to collaborate his earlier findings. Ibid., 869-76.

[49] See especially the discussion following: Philip Slavin, "Out of the West: Formation of a Permanent Plague Reservoir in South-Central Germany (1349–1356) and its Implications*," *Past & Present* 252, no. 1 (2021); Monica H Green, "Out of the East (or North or South): A Response to Philip Slavin*," ibid.256 (2022).

explanations for this trend may include a baby-boom after the first outbreak, altering the ratio between adults and children, and natural selection whereby survivors of the initial outbreak were more likely to possess genetic mutations that made them more resilient to infections of *Yersinia Pestis* as opposed to those born afterwards.[50] Again, the time for recovery was short and a third wave struck many of the same societies between 1364 and 1376. The demographic impact is generally thought to have been lower, at around 10% to 15% of the total European population.[51] At this point, plague acquired its typical pattern for much of the remainder of the second pandemic: epidemics afflicted large parts of western Eurasia and northern Africa roughly every decade in the late fourteenth and fifteenth century. Moreover, mortality rates rarely reached the same level of the first two episodes though local and regional experiences could vary significantly per event, with some communities being spared completely and others witnessing dramatic losses, such as Pistoia in 1399 when almost half of its population may have died.[52] Many of those recurrent plague waves have received far less scholarly attention than the Black Death and it is consequently more difficult to retrace their exact demographic impact at the macro level. In general, scholars assume that the frequent but less deadly outbreaks prevented the recovery of the European population and, by extension, the reversal of the favourable land to labour ratio for workers until (well into) the sixteenth century, when plague frequency seemed to have slowed down. The change in pace and the eventual end of the second pandemic is probably related to changes in the rodent population, potentially the displacement of black rats by brown rats who are less suitable as vectors for *Yersinia Pestis*.[53]

As we have seen, the current historiography places much emphasis on the undeniable high and frequent plague mortality to explain the emergence and persistence of a Golden Age for labour during the second half of the fourteenth and the fifteenth century (see I.1 From the

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[50] Christiane Klapisch-Zuber, "Plague and Family Life," in *The New Cambridge Medieval History: Volume 6: c.1300–c.1415*, ed. Michael Jones, The New Cambridge Medieval History (Cambridge: Cambridge University Press, 2000), 40; Ann Carmichael, "Plague Persistence in Western Europe: A Hypothesis," *The Medieval Globe* 1 (2014): 176-77; Jennifer Klunk et al., "Evolution of immune genes is associated with the Black Death," *Nature* (2022). For the increased vulnerability of children to plague in general, see: Benedictow, *The Complete History of the Black Death*, 672-77.
[51] R.S. Gottfried, *The Black Death: natural and human disaster in medieval Europe* (New York: Free Press, 2010), 131.
[52] An older but still valuable access to the potential outbreaks of plague in Europe is Jean-Noël Biraben, *Les hommes et la peste en France et dans les pays européens et méditerranéens*, 2 vols., La peste dans l'histoire (Paris: Mouton, 1975). However, its use should be complemented with the cautions about its geographic and temporal coverage expressed in Joris Roosen and Daniel Curtis, "Dangers of Noncritical Use of Historical Plague Data," *Emerging infectious diseases* 24, no. 1 (2018). See also the rebuttal: Ole Jørgen Benedictow, "Biraben's lists of the plague epidemics of the second plague pandemic, 1346 – c. 1690: problems, basis, uses," *Annales de démographie historique* 138, no. 2 (2019). For the case of Pistoia, see Cohn Jr., "Plague violence and abandonment from the Black Death to the early modern period," 47.
[53] Belich, *The World the Plague Made: The Black Death and the Rise of Europe*, 102-04.

end of the world to a world with no end). Consequently, it stands to reason that regions which were hit harder during the second pandemic may also have experienced larger gains in living standards. To test this hypothesis, the earlier mentioned focus on the Southern Low Countries and the Republic of Florence is not coincidental. Although the two regions were characterised by a rather similar demography in the early fourteenth century, the impact of plague on the total population differed significantly. Before the Black Death, both belonged to the most densely populated and urbanised areas of Europe. Around 1338, the Republic of Florence boosted circa 420,000 inhabitants within its political borders and circa 1.15 million inhabitants in the area eventually under its control by the middle of the fifteenth century (about 11,000 km²). Many of them lived in cities and urbanisation rates can be estimated at 30% for the Republic proper and 22% for the area within the later boundaries.[54] With a density of circa 100 inhabitants per square kilometre, this part of Central Italy counted more than six times as many people as the European average (15.8 inh./km²).[55] The Southern Low Countries encompassed multiple principalities or fiefs that came under a single ruler during the fourteenth and fifteenth century, namely the Burgundians and, later on, the Habsburgians. The core of the region corresponds roughly to present-day Belgium. Of all the principalities, the County of Flanders offers the best opportunities for comparison because it was of similar size (circa 8,500 km², excluding the circa 1,000 km² of Walloon Flanders which were lost to the French Crown in the early fourteenth century) and the most populated, housing circa 720,000 inhabitants (again, excluding Walloon Flanders).[56] Just as in the Republic of Florence, its population density of 84 inhabitants per square kilometre was far above the European average. Flemish urbanisation rates might have been even higher than those found in the Republic, with estimates above 35%, albeit this figure includes small towns that are usually excluded in Florentine studies since they often employ a threshold of 5,000 or 10,000 inhabitants per locality when calculating urbanisation.[57] It would nevertheless be wrong to ignore these types of communities because they constituted an important element in the urban network of the County.

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[54] W. R. Day, "The population of Florence before the Black Death: survey and synthesis," *Journal of Medieval History* 28, no. 2 (2002). See also Chapter Four, Table 4.1.

[55] Not including Russia. Paolo Malanima, "The economic consequences of the Black Death," in *L'impatto della "Peste Antonina"*, ed. Elio Lo Cascio (Bari: Edipuglia, 2012), table 1.

[56] See notes and sources of Table 4.2 in Chapter Four.

[57] Peter Stabel, *Dwarfs Among Giants: The Flemish Urban Network in the Late Middle Ages*, Studies in urban social, economic and political history of the medieval and modern Low Countries (Antwerpen: Garant, 1997), 19. Our own estimates based on the data included in Table 4.2 suggest an urbanisation rate of 40%. For an example of studies with a population threshold see: Paolo Malanima, "Italian Cities 1300-1800. A quantitative approach," *Rivista di Storia Economica* 14 (1998).

As a robustness check, we also include a second polity of the Southern Low Countries, namely the County of Hainaut. Because it was situated at the periphery of the commercialised core, just south of Flanders, and because it boosts some rare sources to retrace income and wealth, it allows us to test how exceptional the two leading regions of Europe were. Unfortunately, we have no reliable information about the total population before the Black Death. Estimates for the two largest cities reveal that urbanisation was still very limited at the end of the thirteenth century: Valenciennes counted circa 7,500 and Mons circa 5,000 inhabitants, a fraction of the Flemish city of Ghent or the city of Florence which both housed more than ten times that number.[58] Some authors have suggested a population density of 112 inhabitants per square kilometre for the whole County (encompassing 5,000 km²), but this seems highly unlikely in the light of earlier figures.[59] If population had recovered as rapidly as in Flanders (cfr. infra), we may employ the available data for 1569 as a proxy for pre-Black Death levels. This approach suggests that density could not have been higher than 40 inhabitants per square kilometres.[60] It was in all probability far less given that Hainaut witnessed an economic boom at the end of the Late Middle Ages, whereas progress in the already advanced County of Flanders was more limited. To this end, the evolution in Mons and Valenciennes may give us an alternative estimate. If indicative for the whole region, the population density can be estimated at 21.1 inhabitants per square kilometres.[61] Given that urbanisation rates probably increased in the Late Middle Ages, this figure must be interpreted as a lower bound. This shows that Hainaut was certainly no backward region in the early fourteenth century, but its demography was far closer to the European average (15.8 inh./km²) than Florence or Flanders.

The Black Death arrived in Tuscany in late 1347 in its port towns of Pisa and Piombino due to their position in the maritime (trading) routes to the east and their closeness to Corsica,

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[58] Henri Platelle, ed. *Histoire de Valenciennes* (Lille: Presses Universitaire de Lille, 1982); Walter De Keyzer, "Un instantané de la population Montoise à la fin du XIIIe siècle: les rôles de perception de 1296," *Annales du Cercle archéologique de Mons* 77 (1996): 159.

[59] Previous studies have used an inventory of land rents (*terrier*) owned by the Count of Hainaut to derive the number of households for three villages, but such an exercise is faulty for multiple reasons. The most glaring issue is that the rents are recorded per plot and not per household. Consequently, some persons are listed multiple times for different, none-adjacent plots and multiple people are recorded per household because ownership could have been acquired before marriage or after the death of a parent. For the same reason, landless people do not show up in the records. Gérard Sivéry, "Le Hainaut et la Peste Noire," *Mémoires et publications de la Société des sciences, des arts et des lettres du Hainaut* 79 (1965): 433; Benedictow, *The Complete History of the Black Death*, 305-09. The *terrier* is published in Léopold Devillers, *Cartulaire des rentes et cens du au comte de Hainaut*, vol. II (Mons: Dequesne-Masquillier, 1875).

[60] Maurice-Aurélien Arnould, *Les dénombrements de foyers dans le comté de Hainaut (XIVe-XVIe siècles)* (Bruxelles: Palais des Académies, 1956), 298.

[61] By 1444, the population in the two cities combined had increased by 77.6%. For sources, see Chapter 4, Table 4.3.

from where many early infected people fled. By spring 1348, the disease had spread over land and arrived in the city of Florence. Thanks to some exceptional fiscal sources, it is possible to estimate the demographic impact with some confidence: population figures declined by circa 60% in the area of Florence, by 61% around San Gimignano, and by 47% near Prato.[62] The trends in the number of inhabitants is not necessarily representative for mortality rates because migration and nuptiality may also influence the outcome. However, for our current purposes of retracing the economic impact, the total population is far more informative as a proxy for the land to labour ratio. In line with the general picture outlined above, at least thirteen outbreaks with varying mortality rates followed in the next decades until the middle of the sixteenth century based on evidence for the city of Florence (see Table I.1). Consequently, the number of inhabitants declined from 1.15 million to 266,000 by 1427, a staggering loss of about 77%.[63] Population density was still above the European average but no longer as exceptional as before (24 versus 11.4 inh./km²).[64] When waves became less virulent in the later fifteenth century, population seemed to have slowly recovered and eventually reached about 500,000 by 1552, still not even half of the pre-Black Death level.[65]

In stark contrast to the dark picture for Florence, many scholars have suggested that the impact of the Black Death was only limited in the Southern Low Countries. The notion that the region had been spared almost completely was prevalent in the 1950's to 1970's but has long been refuted since.[66] A variance of direct and indirect sources show that here too plague was omnipresent. How could it be otherwise? As a centre of several important international trading networks and as a centre stage for the Hundred Years' Wars, the area witnessed very high levels of mobility. Consequently, *Yersinia Pestis* arrived via multiple routes simultaneously in the summer of 1349: from the south, it travelled along the intensive grain trade from northern France; from the west, it may have been spread by fugitives running from a plague outbreak in Calais, which was probably imported from across the English Channel; and from the north, it had entered the maritime trading hub of Bruges.[67]

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[62] Benedictow, *The Complete History of the Black Death*, 233-58; 698-724.

[63] Herlihy and Klapisch-Zuber, *Les Toscans et leurs familles*.

[64] Malanima, "The economic consequences of the Black Death," table 1.

[65] Marco Della-Pina, "L'évolution démographique des villes toscanes a l'époque de la naissance et de l'affirmation de l'état régional (xve-xviie siècles)," *Annales de démographie historique* (1982).

[66] See especially Hans Van Werveke, "De zwarte dood in de Zuidelijke Nederlanden," *Mededelingen van de koninklijke academie voor wetenschappen, letteren en schone kunsten van België, klasse der letteren* 12 (1950). Even the already mentioned extensive compilation of plague sources, Biraben considered the Low Countries an exception. Biraben, *Les hommes et la peste en France et dans les pays européens et méditerranéens*.

[67] Benedictow, *The Complete History of the Black Death*, 306-13.

TABLE I.1 (POSSIBLE) PLAGUE WAVES AND INDICATIONS OF MORTALITY IN THE REPUBLIC OF FLORENCE AND THE SOUTHERN LOW COUNTRIES

City of Florence		County of Hainaut	
Year (Peak mortality)	Mortality (% of population)	Year (Peak mortality)	Average excess mortality per locality (1349-1505=100)
1348	**60.8**	1349	**(141)****
1363	**(25)***	1361	**194**
1374	**(33)***	1369	151
1383	n/a	1382	124
1400	**20**	1401	**222**
1411	5	-	
1417	**19**	1416	158
1424	5	1426	119
1430	**20**	-	
1437	7.7	1439	**255**
1449	4.7	-	
1457	2.7	1454	124
-		1469	**210**
1479	8.4	1482	**175**
-		1489	111
-		1505	120
1527	11		

Notes: Figures are only an indication of plague severity. They are inferred from imperfect proxies and should not be taken at face value; Figures for Florence before 1430 are based on tax records or chronicles. Afterwards, they are based on the recordings of deceased women enrolled in the Dowry Fund; Figures for Hainaut are calculated from the mortmains (i.e. a heriot tax; N=38,973 deaths) for localities with data pertaining to more than 35 different years (25% of the total years observed for the whole County; N=142). No adjustments were made for different lengths of the accounting year, which may underestimate mortality for some years; Major outbreaks in **bold**; * chronical evidence; ** incomplete data due to lost pages and/or administrative breakdown.

Sources: Benedictow, *The Complete History of the Black Death*, 703; Brucker, G.A. *Florentine Politics and Society, 1343-1378.* Princeton: Princeton University Press, 1962, note 111; Morrison, A. S., J. Kirshner, and A. Molho. "Epidemics in Renaissance Florence." [In eng]. *Am J Public Health* 75, no. 5 (May 1985), Table 1; Panta, L.D. *Le Epidemie Nella Storia Demografica Italiana (Secoli Xiv-Xix).* Turin: Loescher, 1980; own calculations from Roosen, Joris. "Mortmain Database." 2020. I would like to express my gratitude to colleague Roosen for giving me access to his database.

Scant mortality data for specific social groups, such as clergy or aldermen, reveal a substantial increase in the number of deaths during this year. For example, nearly the entire staff of the hospital of Our Lady of the Pottery in Bruges perished and the Saint Nicholas Church in Ghent recorded seven deaths among their 36 beneficiaries of poor relief.[68] Nevertheless, historians have generally concluded that mortality was likely less pronounced than elsewhere, with estimates rarely exceeding a fourth of the total population.[69] A limited epidemical impact may seem puzzling in a context of such a populated and well connected region as the Southern Low Countries, but Ole Benedictow has recently presented historical evidence that plague mortality is inversely correlated to population density. The rationale is that the ratio between humans and rodents, as carriers of infected fleas, is more favourable for the spread of the disease in the countryside than in cities.[70] While his findings hold much merit when discussing intra-regional differences among different types of settlements, they still fail to explain on a macro level why the Republic of Florence, characterised by one of the highest population densities in medieval Europe, was so heavily affected. Rather than solving this paradox, Daniel Curtis and Joris Roosen suggested that the idea of a limited impact of the Black Death on the Southern Low Countries is but a consequence of an urban bias in the consulted sources. Mass migration from the countryside to the towns may have obscured the real demographic consequences of plague. Perhaps the region was no exception after all.[71]

Whereas mortality rates of the Black Death are thus highly contested, historians tend to agree that subsequent plague waves did have a significant demographic impact on the Southern Low Countries, especially *pestis secunda* and the wave around 1400. At least thirteen major and minor outbreaks afflicted the Southern Low Countries until the sixteenth century (see Table I.1 for mortality), a figure that is comparable to that of the Republic of Florence.[72] For our analysis of living standards, their combined effect on the total population is most important. Based on a hearth census of 1469, we can estimate that around 660,000 people were living in the County of Flanders at that time, only a tenth less than before the Black Death. Data for some localities in the early fifteenth century, just after the most devasting series of plague outbreaks, suggests that the demographic decline never exceeded 33% of the

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[68] Griet Maréchal, "De Zwarte Dood te Brugge (1349–1351)," *Biekorf-Westvlaams Archief* 80 (1980): 378-79; Joren Vermeersch, *1349: Hoe de Zwarte Dood Vlaanderen en Europa veranderde* (Antwerp: Uitgeverij Vrijdag, 2019).

[69] For a recent overview of this historiography and the available evidence on plague mortality in the Southern Low Countries, see Joris Roosen and Daniel R. Curtis, "The 'light touch' of the Black Death in the Southern Netherlands: an urban trick?," *The Economic History Review* 72, no. 1 (2019).

[70] Benedictow, *The Complete History of the Black Death*, 877-85.

[71] Roosen and Curtis, "The light touch."

[72] Blockmans, "The social and economic effects of plague in the Low Countries : 1349-1500," table 8; Roosen and Curtis, "The light touch," appendix.

total early-fourteenth century population. With a density of 57.3 inhabitants per square kilometre, the region housed five times as many people as the European average (cfr. supra). By the middle of the sixteenth century, the County of Flanders had fully recovered and counted some 755,000 inhabitants.[73] Similarly, in the County of Hainaut, the population declined by a third between 1365 and 1424, but quickly recovered in the following decades. In 1459, some 209,000 people were living in the region.[74] A population density of 41.8 inhabitants per square kilometre reveals that Hainaut was quickly catching up with the neighbouring County of Flanders and probably surpassed the Republic of Florence in term of demography during the fifteenth century. Even though we cannot conclude that *Yersinia Pestis* was less lethal in the Southern Low Countries, it is clear that the medium- to long-term effects of plague on population figures were significantly weaker than in the Republic of Florence. If the labour force suffered only half the losses experienced by their Florentine colleagues, we could expect that their gains were also less outspoken.

I.3 Tracing the Golden Age

To test the hypothetical relationship between plague and demography on one hand and the increase in living standards on the other hand, we will move from the income of a very specific group to the regional wealth of entire societies. While consumption is not investigated directly, the co-evolution of the previous two variables and the changing attitude towards work allows us to make some informed deductions about the emergence of a material Renaissance. On a practical note, the reader will notice that this thesis consists of two separate volumes. In the first and present one, we focus on building the argument, highlighting the historiography, and discussing the results. Although a general methodology and a description of the sources are always included in these chapters as well, substantial parts of the research required a far more in-depth discussion of the consulted materials or additional analyses that would have severely broken the flow of the text. Statistical tests, extensive lists of used primary sources, contextualisation of certain results, supporting figures for graphs, etc. were therefore redirected to the appendices in the second volume. They are not fundamental to understanding the conclusions of this thesis, but they do explain where some of the results come from. For instance, to estimate the average wealth per person in early fourteenth-century Bruges, we needed to reconstruct its total stock of wealth and population. For both variables we devised multiple, complementing methodologies to arrive at robust figures since

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[73] See notes and sources of Table 4.2 in Chapter Four.

[74] W. P. Blockmans et al., "Tussen crisis en welvaart; sociale verandering 1300-1500," in *Algemene Geschiedenis Der Nederlanden*, ed. D.P. Blok (Haarlem: Fibula-van Dishoeck, 1980), table 1.

no direct data, like a hearth census, was available. The discussion of those methods spans more than ten pages. And while the resulting figure for wealth per capita in Bruges is essential to our story about living standards, it is but one of many datapoints. Two separate volumes allow the reader to look up this type of background information whenever the desire arises without having to flip the pages back and forth.

We start our historical journey off by revisiting the oldest evidence for the Golden Age for labour, namely the daily wages of construction workers. Surprisingly and in contrast to the Republic of Florence, there are currently no continuous real wage series available for the Southern Low Countries that include the period before the Black Death. We therefore add new data and compile existing series into one integrated database, containing more than 300,000 days of work for the counties of Hainaut and Flanders. For the last-mentioned region, the relative abundance of sources allows us to reconstruct series on a subregional level, which enables us to move beyond the traditional approach of focusing on capitals in isolation from the surrounding and often connected labour markets. As a result, we can finally measure the true extent of wage increases in the Southern Low Countries after the Black Death, but also uncover important variations within the region. Those variations prove difficult to explain by demographic factors alone. Instead, we also need turn to the combination of commercialisation and power relations.

Chapter Two and Three explore the representativeness of the reconstructed series. First, we test how reliable daily wages are for the income of construction workers. On the supply side, the historiographical idea of a strong leisure preference after the Black Death is confronted with the labour time of carpenters toiling at the waterworks north of Bruges. While a decline in the number of days worked per year is visible in the second half of the fourteenth century, the trade-off between income and leisure is less than we would expect. Subsequently, we examine a variety of explanations, including rising fiscal pressure, changing household composition, and financial portfolios. However, they all fall short and we suggest that an increasing taste for consumption among urban middling groups may be the true reason why attitudes toward work changed fundamentally. By taking into account these important variations in the work year, we arrive at a new series of annual income for construction workers. Compared to the series based on daily remuneration reconstructed in Chapter One, a significantly different evolution becomes visible and implies that the Golden Age glittered less bright and far later. On the demand side, we assess to what extent building labourers were able to profit from higher daily wages by finding employment. Several proxies for construction activity in the area around Bruges paint a gloomy picture for much of the fourteenth century. Probably spurred by the higher levels of consumption and a related new material culture with attention for housing and its interior decoration, demand for construction workers increased again in the fifteenth century. In the next chapter, we

question how typical the building industry is for the rest of society by tracing the relative position of its members in wealth distributions of several cities. Because occupational references in taxation lists are too broad to distinguish between labourers and large contractors, we cross-reference multiple city accounts to identify individuals from both groups. It shows that the relative fiscal position of entrepreneurs remained largely unchanged throughout the late medieval period. In contrast, the position of wage workers evolved in accordance with their daily remuneration: the more wages increased, the higher they ranked in taxation lists. The co-evolution implies that most of society witnessed less gains in household income than wage series have suggested. After all, if everyone had enjoyed similar increases, the fiscal position of labourers should have stayed the same.

Although relative changes thus help us to question the extent of the Golden Age outside the building industry, they can't inform us about absolute levels of living standards. Considering the spectacular increase in daily wages, gains in other sectors and under different forms of employment might still have been significant after the Black Death. Because this type of information is unfortunately scarce, the last two chapters focus on the absolute wealth of entire communities. In Chapter Four, we reconstruct the average fiscal wealth per region for three benchmark periods, namely around 1300, 1400, and 1550. At this general level, trends seem to confirm the universal increase in living standards after the Black Death albeit, in line with our earlier results, less pronounced than wages series suggest. Moreover, when we zoom in on the geographic distribution within each region, important variations become visible. In the Republic of Florence, gains were heavily skewed towards the capital. Remarkably and in opposition to the idea of a Golden Age, the average wealth per capita seemed to have declined in most cities and villages during the fourteenth century. In comparison, the Southern Low Countries were characterised by limited differences between communities. Here, gains could be found almost everywhere. In fact, they were most outspoken in secondary cities and the countryside in the two centuries after the Black Death, which helped to reduce the gap with the industrial metropoles of the early fourteenth century. Chapter Five subsequently shifts the attention from the geographic to the social distribution of wealth to better understand why these evolutions occurred. Changes in the average wealth per capita may be attributed to changing fortunes across the board, but also to developments within certain classes. We therefore reconstruct wealth levels for every fiscal decile of the whole Flemish and Florentine populations around 1300 and 1400. Special attention is given to the elites because they owned the largest share of the total wealth. Additional datapoints before and after the two benchmarks are explored for the three regional capitals. Again, the evolutions in the Southern Low Countries and the Republic of Florence were opposite. We find that the top of society in the first-mentioned region suffered a significant decline whereas lower and middle classes saw great advances. The economic proliferation of secondary cities and a (still limited) rural

proto-industry generated high demand for labour, which was probably met by industrious households aspiring to partake in a new material culture. In the Republic of Florence, elites managed to accumulate ever more wealth at the cost of lower classes during the Late Middle Ages. Increased taxation, military expeditions, urban landownership, and protectionist economic measures allowed them to claim much of the profits even in a context of high wages. At this point, any direct relationship between plague and living standards seems no longer tenable. The following pages may therefore serve as an important reminder to the public and to policy makers in specific that although pandemics may cause some unforeseen and fundamental challenges to society, existing power relations and their related institutions shape their eventual outcome. In times of crisis, those structures should not be regarded as passive or impotent actors but must be critically examined.
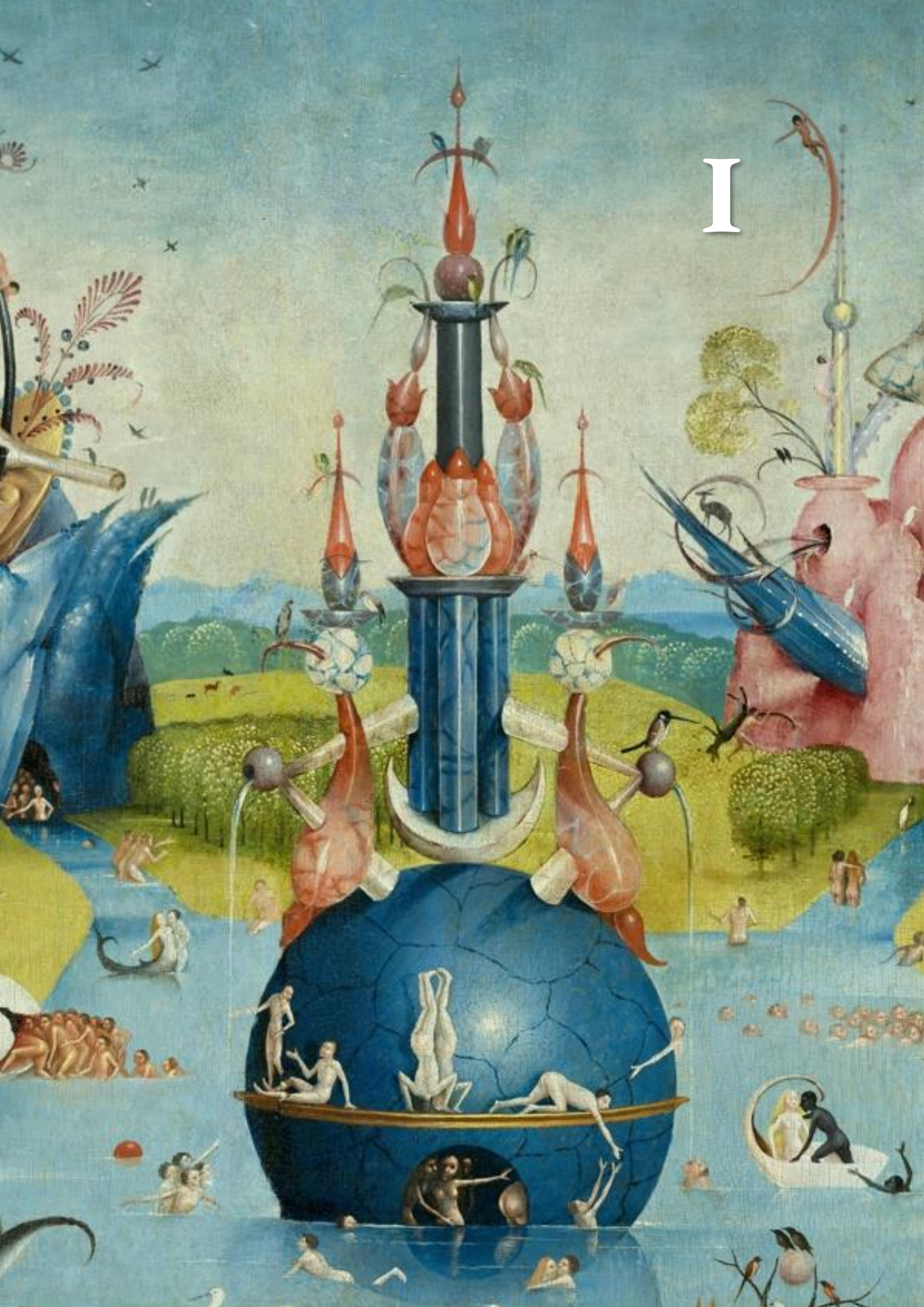
From rags to riches?

Builders' wages and welfare ratios

Wages make up the very foundation upon which the notion of the medieval Golden Age for labour is constructed. They have been the primary evidence for the incredible jump in living standards after the Black Death. As we have seen in the general introduction, contemporary chroniclers already remarked the exceptional evolution of wages in this period. Generations of scholars, from Thorold Rogers and Karl Marx in the nineteenth century to Robert Allen and Gregory Clark in the present-day, have collected a mass of wage data and reconstructed long-term series to quantify the extent of these claims. The results have captivated historians ever since. No other time before Industrialisation would witness such a rapid and universal increase in European living standards. In the Republic of Florence, as we will see, income levels more than doubled in the second half of the fourteenth century. For the Southern Low Countries, the extent of the gains in living standards is more difficult to measure because all currently available real wage series only commence after the Black Death or are highly fragmentary for the preceding period.[75] How golden the late medieval period really was in this region remains an open question.

At first glance, the lack of data for the pre-Black Death era does not necessarily pose a crucial problem since the traditional theoretical models for the Late Medieval Crisis can and have been applied to the Southern Low Countries and predict a rather similar evolution of wages as elsewhere. Perhaps most popular in international historiography, neo-Malthusian scholars assert that continuous population growth from the High Middle Ages on put increasing pressure on the limited natural resources and the living standard until the positive shock of the Black Death fundamentally reshuffled the balance between the factors of production: the availability of labour declined abruptly while that of land and capital increased per capita, resulting in sky-rocketing wages.[76] Considering that the Southern Low Countries were one of the most densely populated areas of Europe at that time, the idea of a Malthusian deadlock and subsequent catastrophe seems most compelling for this region as well. Indeed, in his

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[75] Most notably: Herman Van der Wee, *The Growth of the Antwerp Market and the European Economy. Fourteenth-Sixteenth century* (Antwerp: Nijhoff, 1963); Jean-Pierre Sosson, *Lest travaux publics de la ville de Bruges. XIVe-XVe siècles.* (Brussels: Crédit communal de Belgique, 1977); Gérard Sivéry, *Structures agraires et vie rurale dans le Hainaut à la fin du Moyen-âge*, 2 vols. (Lille: Presses Universitaires de Lille, 1977).

[76] Abel, *Agrarkrisen und Agrarkonjunktur*; M.M. Postan, *Essays on Medieval Agriculture and General Problems of the Medieval Economy* (Cambridge: Cambridge University Press, 1973); Georges Duby, *L'économie rurale et la vie des campagnes dans l'occident médiéval*, 2 vols. (Paris: Aubier, 1962).

overview of the effects of plague, Wim Blockmans concluded that the epidemics had solved "a very imminent or real overpopulation by means of the Malthusian positive checks" even though he had barely presented any data for the period before 1349.[77]

More influential in the national literature are the neo-Marxist and neo-Smithian traditions, focusing respectively on the social allocation of resources and commercialisation, and which are often combined with institutional elements like the role of guilds or property rights. Although starting from a different perspective, they too have come to a gloomy interpretation of labour in the first half of the fourteenth century. In the context of diminishing returns and failing international markets, seigneurial lords and merchants increasingly exploited labourers to counter their falling revenue. Already in the early twentieth century, the famous Belgian historian Henri Pirenne argued that a mercantile elite held all political power and necessary capital to control the all-important textile industry in the Southern Low Countries.[78] Workers, like weavers and fullers, and who made up the majority of the urban population, were economically dependent on those elites because they had but little to no access to the raw materials and the international markets. Wages were unilateral set by entrepreneurs at miserable levels. Only through a series of violent revolts did textile workers somewhat better their position, but they would never truly cast off the yoke.[79] While Pirenne's hypothesis has been refined and expanded for over a century, the core of his argument is still widely accepted. For example, one author recently described the Flemish textile ateliers as "the sweatshops of [medieval] Europe."[80]

The preciously few published wages concerning the pre-Black Death era cannot verify or disprove the grand narratives unfortunately. Most of the data stem from the 1340's, just a few years before the catastrophic events, obscuring long-term evolutions.[81] Some pertain to

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[77] Blockmans, "The social and economic effects of plague in the Low Countries : 1349-1500," 863. Although Blockmans underscores the neo-Malthusian interpretation of the medieval plague waves in this article, he can hardly be described as a neo-Malthusian scholar based on his complete works.

[78] On the different influences present in Pirenne's work, see: Erik Thoen and Eric Vanhaute, "Pirenne and economic and social theory: influences, methods and reception," *Belgisch Tijdschrift voor Nieuwste Geschiedenis* 41, no. 3-4 (2011).

[79] Henri Pirenne, *Geschiedenis van België. Van het begin der XIVe eeuw tot den dood van Karel den Stoute*, 7 vols., vol. 2 (Ghent: Samenwerkende Maatschappij 'Volksdrukkerij', 1904), 56-68.

[80] Peter Stabel, *A Capital of Fashion. Guilds and Economic Change in Late Medieval Bruges* (Oxford: Oxford University Press, forthcoming), 47.

[81] Hans van Werveke, "De ekonomische en sociale gevolgen van de muntpolitiek der Graven van Vlaanderen (1337-1433)," *Annales de la Société d'Emulations de Bruges* 74 (1931); W. Prevenier, K. Deblonde-Cottenier, and L. Van Damme-De Mey, "Prijzen en lonen in de domeinen der Gentse abdijen (St. Pieters en St. Baafs). (13e-14e eeuw)," in *Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, ed. C. Verlinden (Bruges: De Tempel, 1973), 310-25; Chris VandenBorre, "Prijzen, lonen en levensstandaard in Brugge en omgeving tijdens de 14de en het begin van de 15de eeuw" (Master thesis, Rijksuniversiteit Ghent, 1998), 300-13; Vermeersch, *1349*.

earlier periods but have so few scattered observations, covering less than ten years, that their representativeness is uncertain.[82] By far, the most complete series for the early fourteenth century is reconstructed by Tim Soens based on the accounts of the Flemish water boards. Aside from an important gap between 1308 and 1338, his dataset contains some observations from 1285 onwards. Although Soens did not intend an in-depth analysis, his findings are quite remarkable.[83] The data for unskilled workers seem to fit the neo-Malthusian framework: remuneration was quite low around 1300 and more than doubled after the Black Death. By contrast, the real wages of skilled carpenters were already very high before the demographic crisis. They would not be surpassed until the fifteenth century and then only by a small margin (+22%).[84] This trend is very much problematic for the traditional models and paints a fundamentally different picture of the Golden Age for labour.

Soens' findings may not fit the classic grand narratives of the Late Medieval Crisis, but they do find some resonance in another longstanding debate. One of the most fundamental developments in the history of the Low Countries, the rise of the urban middle class, offers an alternative view on wages in the early fourteenth century. As textile centres were gradually forced to reorganise their production from cheap, light cloths towards luxury woollens due to international competition, the skills of highly specialised clothiers became indispensable and well rewarded. In addition, a small group of skilled artisans and petty traders was able to enrich themselves in the shadows of the export-oriented cloth industry by catering primarily to the needs of the local and regional population: bakers, carpenters, fishmongers, candle makers, barbers, etc.[85] While the emergence of a political and cultural self-consciousness of this middle class is traced back to the middle of the thirteenth century, their real economic and demographic breakthrough is traditionally situated in the fifteenth and sixteenth century.[86] According to Herman van der Wee, this evolution is intrinsically linked to the Golden Age for labour because high wages allowed workers to spend a part of their income

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[82] Most importantly: Christiane Piérard, "Prix et salaire au XIV siècle et au premier tiers du Xve siècle," *Annales du cercle archéologique de Mons* 70 (1976): 63-66; Sivéry, *Structures agraires*, 409-14; Erik Thoen, "Landbouwekonomie en bevolking in Vlaanderen gedurende de late Middeleeuwen en het begin van de Moderne Tijden. Testregio: de kasselrijen van Oudenaarde en Aalst (eind 13de- eerste helft 16de eeuw)" (PhD thesis, Rijksuniversiteit Ghent, 1988), 941-62.

[83] The data was gathered to calculate real expenditures of the water board. Most telling, the annex of the thesis which contained and discussed the wage data did not even make it into the book publication. Tim Soens, *De spade in de dijk? Waterbeheer en rurale samenleving in de Vlaamse kustvlakte (1280-1580)* (Ghent: Academia Press, 2009).

[84] "Waterbeheer in een veranderende samenleving. Een ecologische, sociaal-economische en politiek-institutionele studie van de wateringen in het Vlaamse kustgebied in de overgang van de middeleeuwen naar de moderne tijden. Testregio: het Brugse Vrije." (PhD thesis, Ghent University, 2006), 568-75.

[85] Pirenne, *Geschiedenis van België*, 2, 56-68.

[86] Jan Dumolyn and Jelle Haemers, "Patterns of urban rebellion in medieval Flanders," *Journal of Medieval History* 31 (2005): 374-78.

on other things than basic needs, thus generating demand for local crafts. The industrial revival or reconversion of cities in the Southern Low Countries occurred in tandem with, and for some historians primarily because of the increased demand for (semi-) luxuries by international clients, local elites, and the princely courts.[87] Recently, however, Peter Stabel has argued on the basis of occupational distributions in Bruges that the rise of the middle classes started much earlier, already before 1300, and gained momentum from 1360 onwards. His revisionist view is far more critical than simply pushing the evolution further back into time because it implies that change came foremost from within the ranks of the craftsmen. They did not need an external mortality shock nor the spill-over effect from elitist consumption to alter the distribution of income. The opposite is in fact true: societal change came about in spite of failing international markets and mounting demographic pressure.[88]

In sum, the grand narratives do not provide definitive answers for the Southern Low Countries. They have remained speculative up to now despite all their bold claims about the evolutions of wages and the importance of the Black Death herein. Whereas the traditional view predicts that all labourers went from rags to riches after the demographic crisis, there are some indications that a select group of skilled craftsmen already earned high wages before. In the following pages, we will raise even more question marks about the Golden Age for labour thanks to our newly reconstructed series for the County of Flanders, encompassing the period between 1275 and 1550. In the first and second section, we introduce the sources and methodology that made such an exercise possible. We will encounter several issues, such as how to measure consumption and household income, some of which we are not yet able to solve. Subsequently, we are forced to focus exclusively on the daily wages of male construction workers. In the following section, we explore their evolution in the metropoles and the towns of two regions in the County. We will see how the horror of the Late Medieval Crisis unfolded, which regions caught up after the Black Death, and when the Golden Age lost its shine. Subsequently, the final three sections assess to what extent the grand narratives can explain the observed trends. Despite its prominent place in international historiography, a close relationship between demography and remuneration appears dubious. Instead, we need turn to the fundamental reconversions in the urban and rural economy.

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[87] Van der Wee, *The Growth of the Antwerp Market*, 369-88. The impact of the elite demand on the welfare of middling groups has been a matter of contention. See for example: Raymond Van Uytven, "Splendour or wealth: art and economy in the Burgundian Netherlands," *Transactions of the Cambridge Bibliographical Society* 10, no. 2 (1992).

[88] Stabel, *A Capital of Fashion. Guilds and Economic Change in Late Medieval Bruges*.

1.1 In search of the impossible. Reconstructing real wages

In order to reconstruct premodern living standards, scholars have relied foremost on the wage rates of skilled and unskilled male labourers in the building industry and, to a lesser extent, agriculture to reconstruct real wage series because workers in these two sectors were often paid per day. In contrast, other occupations were usually paid per piece or task, which included but not specified the cost of materials and the number of working hours, obscuring the net income. Building labourers have been especially preferred since construction technology hardly changed before the nineteenth century and seasonality had less impact on the volume and remuneration of work compared to agricultural labour. Men have figured most prominently in secondary literature because premodern data for women and children is scarce, especially for the Middle Ages. For these reasons and in the interest of comparability, this chapter will likewise focus on the daily wages of male building labourers. Concerns over the representativeness of this occupational group and their daily wage rates are addressed in the next chapters, where we will look beyond wage income and construction workers.[89] Concerns over the focus on male labourers will be discussed in the next section.

While pioneering scholars in the Low Countries, such as Nicolaas Posthumus and Hubert van Houtte, started to collect serial data already in the beginning of the twentieth century, the study of wages really came to the forefront during the 1960s and 1970s under influence of structuralist theories such as Keynesianism and the *Annales* school.[90] A large project under Charles Verlinden was set up to collect data for the County of Flanders and the Duchy of Brabant.[91] To date, this multi-volume work remains the most comprehensive list of wages and prices for the Southern Low Countries. The methodology in this study is typical for the one adopted in similar studies at that time: the different authors were required to focus on those sources that provided serial data for a prolonged time for one place and, preferably, for one institution to counter possible biases in the material as much as possible.[92] Ironically, this approach heavily favoured large urban or religious institutions in the leading centres, namely Bruges, Ghent, and Antwerp.[93] As we will see, the level of remuneration in these places is hardly representative for the region as a whole. Moreover, the idea that uniformity of place

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[89] See for example the criticism on builders' wages in: Hatcher, "Unreal Wages: Long-run living standards and the 'Golden Age' of the fifteenth century."

[90] N.W. Posthumus, *Nederlandsche prijsgeschiedenis* (Leiden: Brill, 1943); Hubert Van Houtte, *Documents pour servir à l'histoire des prix de 1381 à 1794* (Brussels: Kiessling et Imbreghts, 1902).

[91] C. Verlinden, ed. *Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, 4 vols. (Bruges: De Tempel, 1959-73).

[92] Ibid., vol. 2, x-xi.

[93] For our period between 1275 and 1550, the four volumes contain 25 studies of which 18 pertain to cities with more than 10.000 inhabitants.

or even institution would make the data more robust is a fallacy because the organisation and needs of institutions or cities inevitably change from year to year.[94] One only needs to look at the fluctuations in the volume of work within one series to understand how variable the type and scale of work can be. For example, a hospital might only need a single tiler to perform some simple maintenance work in one year, while they need to hire a dozen of specialised craftsmen to construct an entire new building in the next year. The very reluctance to combine and mix different series eventually led to the decline in the interest of reconstructing wage series. Analyses of the datasets remained largely descriptive, demarcating price evolutions.[95] After two decades, the enthusiasm had waned and scholars felt they had reached the limits of the available source material. This was especially problematic for the pivotal fourteenth century as the project had found but little data for this period. In the last volume, Kristen Deblonde-Cottenier remarked that it 'is most certainly impossible to reconstruct continuous and homogeneous series of prices and wages for [the fourteenth century].'[96]

It would have made for a rather short chapter if nothing had changed since the publications of Charles Verlinden and his team. With the advent of computers and their statistical capabilities to analyse large datasets, we can move beyond the limitations earlier generations of scholars had put on themselves. Rather than hoping that a homogeneous series would minimise the number of variables influencing wage levels, we can now identify and control for those variables in a more systemised way. In fact, it is precisely the variety in wages that helps us explain certain evolutions. Moreover, the new approach allows us to build an integrated database, including institutions with scattered or limited observations. Within the scope of this thesis, we have focused on collecting data for the counties of Flanders and Hainaut. Whereas the exercise was most productive for the former, observations for the latter were too scattered in time and too concentrated in place to provide the level of detail and comprehensiveness needed to discern the driving forces of wage trends.[97]

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[94] A similar critique on the lack of reflection on the selection of sources was already voiced by Herman Van Der Wee after the publication of the first volume yet never addressed in the subsequent volumes. H. Van Der Wee, "Compte-rendu: Dokumenten voor de Geschiedenis van Prijzen en Lonen in Vlaanderen en Brabant," *Revue belge de Philologie et d'Histoire* 39, no. 3 (1961).

[95] C. Vandenbroeke, "Prijzen en lonen als sociaal-economische verklaringsvariabelen (14e-20e eeuw)," *Handelingen der maatschappij voor geschiedenis en oudheidkunde te Gent* 36 (1982): 103-04. Exceptions naturally existed. See for example H. Van Der Wee, "Prices and wages as development variables: a comparison bettween England and the Southern Netherlands, 1400-1700," in *Acta Historiae Neerlandicae*, ed. I. Schöffer (Springer Netherlands, 1978).

[96] Prevenier, Deblonde-Cottenier, and Van Damme-De Mey, "Prijzen en lonen," 230.

[97] During the Second World War, two thirds of the State Archive of Mons was tragically lost after a bombardment, including the medieval accounts of the many small cities. As a result, most of the data pertains to the larger cities of Valenciennes, Ath and Mons. Even if we take all localities together, the database contains some significant gaps in time, lacking observations for 69 out of 225 years and sometimes missing more than an entire decade.

MAP 1.1 GEOGRAPHICAL COVERAGE OF THE DATABASE (YEARS OBSERVED, 1276-1550)
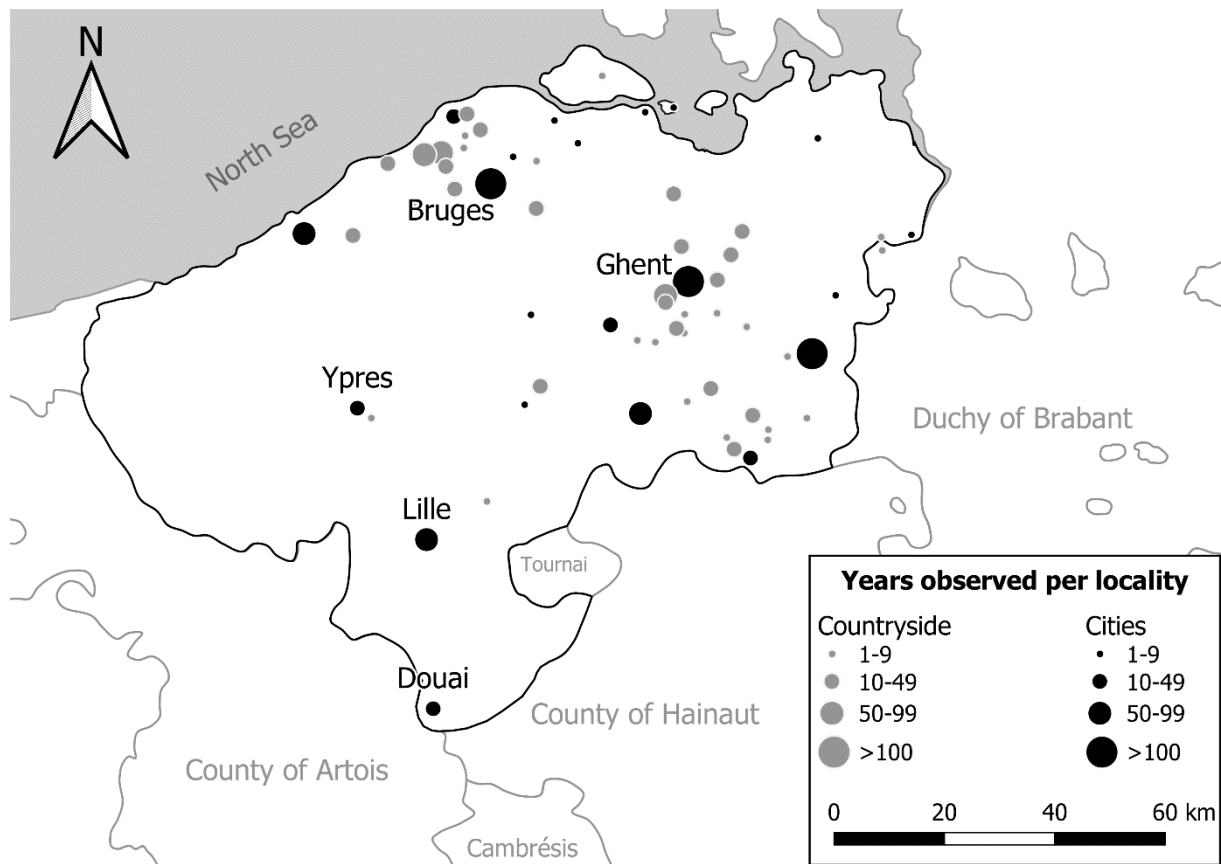
FIGURE 1.1 NUMBER OF INSTITUTIONS WITH DATA PER DECADE IN THE DATABASE
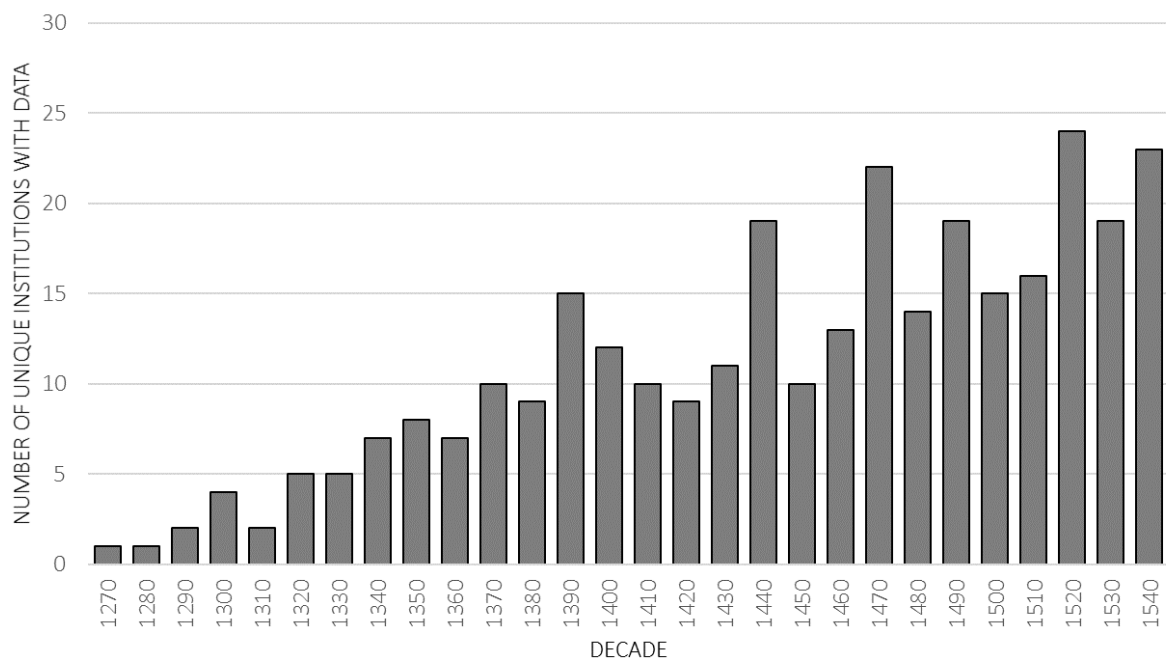
We have therefore chosen the County of Flanders as the primary test case. This does not mean that the data for Hainaut is completely useless. Together with the well-known published series for the Duchy of Brabant (cfr. infra), it serves as an important benchmark to test the representativeness of the County of Flanders (see 1.5 A touch of Smith), which might have been atypical considering that it was the economic powerhouse of the medieval Southern Low Countries and probably Northwestern Europe in general.

Geographically, the data covers a large area of the County of Flanders with a particular high number of observations along the main economic axis between Ghent and Bruges (see Map 1.1). No sources were unfortunately found for the eastern most regions, most notably the castellanies of Cassel and Sint-Winoksbergen. This isn't overly problematic as those areas housed only a minority of the total population.[98] Chronologically, the database contains information for 252 years between 1275 and 1550. The largest gaps are situated in our earliest period, the last quarter of the thirteenth century (18 years missing). Between 1300 and 1330, we lack observations for six years but never more than two subsequent years, which allows us to make some robust interpolations about the wage levels in those years. No data is missing from then on.[99] Given that the likelihood of preservation decreases with the age of documents, it is unsurprising that the representativeness of our data, as measured in the number of different institutions for which we have wage rates, increases as time progresses (see Figure 1.1). There are only three institutions who provide us with observations for the thirteenth century. The number per decade then increases steadily from five in the first half of the fourteenth century to nearly twenty institutions in the first half of the sixteenth century. A detailed list of all 27 sources, 50 institutions and 63 locations included in our database can be found in Appendix 1.1.

To determine the wage level in the County of Flanders, we have calculated the most common rate, or mode, paid to skilled and unskilled male workers. This measure of central tendency was to some extend forced upon us because some sources did not report the number of days worked per wage rate, which makes it impossible to calculate means. There are however some good reasons as to why this methodology has been the most popular in the national historiography.[100] Compared to the mean, the mode is less influenced by outliers both within and between institutions. For example, when confronted with a similar problem of wage

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[98] Together, the six (out of 18) castellanies not included in our database represent ca. 10% of the Flemish population according to the figures reported in W. Prevenier, "La démographie des villes du comté de Flandre aux XIIIe et XVe siècles. Etat de la question. Essai d'interprétation," *Revue du Nord* Numéro thématique: Moyen Âge (1983).
[99] The missing years are 1277-1284, 1286-92, 1294-95, 1298, 1300-01, 1308, 1310-11, 1330.
[100] For example: Etienne Scholliers, *Loonarbeid en honger. De levensstandaard in de XVe en XVIe eeuw te Antwerpen* (Antwerp: Uitgeverij De Sikkel, 1960), 65-66; Van der Wee, *The Growth of the Antwerp Market*, Vol. 2, 148-50.

variation in his seminal work on the building industry in the city of Florence, Richard Goldthwaite chose to average the mean wage per institution, resulting in a highly volatile series.[101] The mode also has the advantage of better highlighting stability, which was one of the core characteristics of medieval remuneration (cfr. infra). On the other hand, the approach does have the significant downside of underestimating the variety of wages, which risks obscuring some structural differences. To counter this, we have conducted some statistical tests to control for the impact of occupation (skill level and trade), location (population, region, distance to the nearest town and metropole), institution, seasonality, and volume of work. The details of these tests together with the precise calculations of the wage levels can be found in Appendix 1.2.

Based on a multivariate regression analysis, we have selected the daily wages of unskilled construction workers and skilled carpenters, masons, tilers, pavers, and thatchers as being representative for the building sector. The vast majority of wage studies focuses on the wages in leading urban centres, such as Florence, Paris, or London. Their results are not necessarily representative for the wider region. In medieval London for example, remuneration was a third higher to a half higher than in the rest England.[102] For Flanders, we have likewise found structural differences besides the traditional wage differential between town and countryside (cfr. infra). We therefore reconstructed three regional series: one for the metropoles of Bruges and Ghent; one for the towns of Coastal Flanders, the area between the North Sea and a parallel border roughly between Hulst, Bruges, and Broekburg; and one for the towns of Inland Flanders, encompassing the core and eastern parts of the County. Important wage differences could also be distinguished for the most southwestern castellanies of Lille and Douai, but the data was too fragmentary to retrace trends for the whole period. We nevertheless employ the available wage information to support the findings for the other regions (see 1.6 Confronting Marx).

It is important to note that we did not reconstruct a separate series for rural communities. Our regression analysis revealed that an urban premium was paid up to a minimum of eight kilometres from the nearest city walls (see Appendix 1.2). Observations for more remote communities were too limited in our database to track the long-term evolution of truly rural

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[101] R.A. Goldthwaite, *The Building of Renaissance Florence: An Economic and Social History* (Baltimore: Johns Hopkins University Press, 1980), 317-31.

[102] David Farmer, "Prices and wages 1350–1500," in *The agrarian history of England and Wales*, ed. Edward Miller (Cambridge: Cambridge University Press, 1991), 467-82; Paolo Malanima, "When did England overtake Italy? Medieval and early modern divergence in prices and wages," *European Review of Economic History* 17, no. 1 (2013): 54-58; Judy Z. Stephenson, "'Real' wages? Contractors, workers, and pay in London building trades, 1650–1800," *The Economic History Review* 71, no. 1 (2018).

wages (N=61 years or 22.2% of the total period). They nevertheless reveal that skilled wages were on average a fourth higher in towns (+27.5%). This trend can probably be explained by the residence and skill level of the hired craftsmen. Located further away, the power of the urban guilds over this part of the countryside was probably too limited to enforce the recruitment of their members and the opportunity cost for the urban craftsmen too high to make the trip. For most works, the often more limited and cheaper skills of rural craftsmen probably sufficed. Serving as a counterfactual argument, the database also contains some payments to labourers in the countryside for specialized tasks that surpass the level commonly found on the urban markets, which might reflect the additional cost for a craftsman to travel from the nearby town. In contrast, unskilled wages did not differ significantly. The mode was equal and the average was only a tenth higher in towns (+8.8%). Differences remained limited because this type of labourer was not organized in guilds, did not possess fundamentally different skill levels, and was abundantly available in both town and countryside. Accordingly, a separate series would only be warranted for rural craftsmen.[103] However, this group only accounts for a minority of the building industry in late medieval Flanders. Most construction work was conducted in towns where the concentration of buildings was higher and their design more complex. In addition, most places would have been influenced by the urban premium as they were rarely located further than ten to twenty kilometres from an urban market thanks to the high number of small towns (see also Chapter Four, Map 4.1).[104] We may therefore assume that the three regional series are representative for the wages most commonly paid to building labourers in the County of Flanders even though they pertain foremost to urban labourers.

Figure 1.2 shows the evolution of the nominal daily wages of unskilled male labourers for the three regional series. The picture is very similar for the skilled workers and is therefore not included, but both demonstrate the earlier mentioned stability of wages during the Late Middle Ages. With the exception of rapidly increasing levels in the four decades after the Black Death, the nominal wage hardly fluctuates over the years. For instance, remuneration remained identical in Bruges between 1454 and 1550, almost an entire century! According to John Munro, this wage stickiness is essential in explaining the ups and downs of medieval

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[103] The lack of differences between unskilled workers is confirmed in other wage studies for Flanders. See for example VandenBorre, "Prijzen, lonen en levensstandaard," 161-62.
[104] Peter Stabel, "Urbanisation and Its Consequences: The Urban Region in Late Medieval Flanders," in *Regions and Landscapes. Reality and Imagination in Late Medieval and Early Modern Europe*, ed. Peter Ainsworth and Tom Scott (Bern: Peter Lang, 2000), 182.

FIGURE 1.2 THE NOMINAL WAGE OF UNSKILLED LABOURERS IN FLANDERS
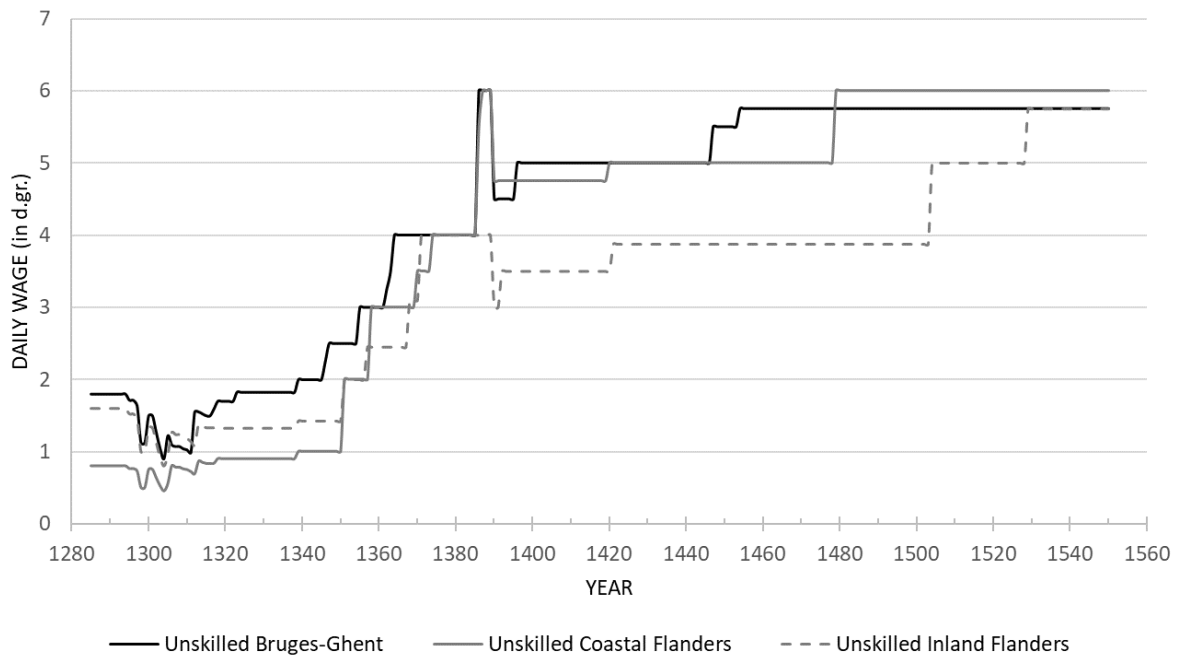
Sources: see Appendix 1.1

living standards. Building upon John Maynard Keynes' theory of nominal rigidity of wages, he argues that the remuneration of labour did not or did not adapt as quickly as prices to monetary changes because of a reluctance of employers during inflationary times. Wage payers were not likely to increase the remuneration of their employees since food prices often increased more than their own profits. Moreover, periods of inflation were mostly short until the sixteenth century. Declines in living standards were believed to be temporary, so only if higher prices proved to be more structural after a few years did wages respond. During deflationary times, remuneration is likewise inflexible because of the money illusion. This concept refers to the supposedly false yet popular belief that the value of money doesn't change over time. According to this logic, any reduction in the nominal wage appears to be a net loss of income, even if it was simply the result of a proportional adjustment to new price levels or the intrinsic value of coins. Simply put, it is not fun to see a lower figure on your pay cheque when you are used to a certain salary. Flemish labourers, now and then, are notoriously vocal about their working conditions. Organised strikes and collective actions,

such as the temporary departure of the workforce from the city, were often employed instruments by crafts guilds to voice their discontent over wages.[105]

The explanation of Munro shows that living standards were not only dependent on the nominal wage, but also on the concomitant evolution of prices. If remuneration was mostly stable, changes in the prices of essential goods dictated the purchasing power of labourers to a large degree. To retrace this relationship between wages and the cost of living, the vast majority of scholars divided the nominal wage by the price of grain, either wheat or rye. This methodology has the clear advantage that grain prices are wildly available for most regions and periods, making them ideal for comparative research. In addition, grain was one of, if not the most important component in the average medieval diet, accounting for up to half of household expenditures.[106] However, no one spent their entire income on a single product. Basic needs also include clothes, shelter, and fuel. In fact, most families didn't even consume grain but rather purchased bread or flour, which implies the cost of milling and baking. This is especially relevant for grain exporting regions because here the price differential between grain and its processed derivates is much larger than in import dependent regions.[107] Also problematic when assessing the extent of the Golden Age for labour is that the price of grain relative to other consumer goods became much cheaper after the Black Death.[108] Thus by focusing on this single product one risks overestimating the gains in the second half of the fourteenth century.

Due to all the drawbacks of using grain prices as a deflator, it has become good practice to divide nominal wages by a basket of different goods to better mirror real expenditures. Remarkably, up to now, only two long-term continuous series of basket prices have been reconstructed for the medieval Southern Low Countries. For the Duchy of Brabant, Herman van der Wee collected prices of ten consumer goods between 1400 and 1700.[109] For the County of Flanders, John Munro was able to compile consumer baskets from an earlier

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[105] John Munro, "Wage-stickiness, monetary changes, and real incomes in late-medieval England and the Low Countries, 1300 - 1500: did money matter?," *Research in Economic History* 21 (2003): 190-206.

[106] Phelps Brown and Hopkins, "Seven Centuries of the Prices of Consumables," 296-98; Robert C. Allen, "The Great Divergence in European Wages and Prices from the Middle Ages to the First World War," *Explorations in Economic History* 38, no. 4 (2001): 419-22; John Munro, "Builders' wages in southern England and the southern Low Countries, 1346 -1500: a comparative study of trends in and levels of real incomes" (paper presented at the L'Edilizia prima della rivoluzione industriale, secc. XIII-XVIII, Atti delle "Settimana di Studi" e altri convegni, Istituto Internazionale di Storia Economica F. Datini, 2005), 1048-50.

[107] Allen, "The Great Divergence," 420.

[108] Abel, *Agrarkrisen und Agrarkonjunktur*, 55-70. For the price scissor in the Southern Low Countries: Thoen, "Landbouwekonomie en bevolking," 253-67.

[109] Van Der Wee, "Prices and wages as development variables: a comparison bettween England and the Southern Netherlands, 1400-1700."

date onwards, covering the period between 1349 and 1500.[110] While his study certainly deserves much credit for providing a robust consumer price index, tracing relative changes in the prices of different goods over time, it is less suited for our current objective to measure absolute levels of living standards. First, the basket does not contain any meat or fuel products, which accounts for one fifth to one third of premodern household expenditures.[111] Second, the prices of drink and meal products is underestimated because they are based on the price of grains, leaving out all other production costs. Third, just as Van der Wee, Munro based the quantities of each product in the basket on those suggested in the seminal work of Phelps Brown and Hopkins. These quantities reflected expenditure shares reported in medieval household budgets based on what a hundred pence could buy in southern England in the period 1451-1470, but they do not resemble a realistic consumption pattern as the two authors warned us.[112] If Phelps Brown and Hopkins had taken another base period, reference region, or budget, the quantities would have been significantly different. As a result of these rather arbitrary choices, it is unclear what the unit of measurement really represents. How well-off was a worker who could afford three baskets for example?

To assign real wages a more absolute meaning, scholars often rely on welfare ratios. Although the concept was already introduced by economists in the 1960's, it would only be popularised by Robert Allen within the field of premodern history some forty years later.[113] Welfare ratios rank wages according to their distance from the poverty line by dividing the nominal wage by the price of a basket that represents the minimum number of goods anyone would need to survive. Alternatively, one could allow for a more comfortable way of living through the inclusion of more qualitative goods or a more varied diet. While it is true that welfare ratios are a very economic and narrow interpretation of the standard of living, ignoring other important variables such as freedom, health, literacy, etc., it has the advantage that the results are relatively straightforward.[114] Whether one uses the bare bone baskets or the more respectable baskets, they can be interpreted intuitively: if a labourer could purchase less than one basket with his wage, it means that he did not achieve the proposed level of prosperity. If, on the other hand, he earned more than one basket, he could support additional family members with his income.

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[110] Munro, "Builders' wages."

[111] Munro tried to compensate the lack of meat prices by increasing the quantities of cheese and butter. Unfortunately, this enhanced the problem of the unrepresentative cheese prices (see Appendix 1.3).

[112] Phelps Brown and Hopkins, "Seven Centuries of the Prices of Consumables," 303.

[113] James Morgan et al., *Income and welfare in the United States* (New York: McGraw-Hill Book Company, 1962); Allen, "The Great Divergence."

[114] For a recent critique, see: De Keyzer, "How was city life? ."

To date, no welfare ratios have been calculated for our test case, the County of Flanders. We have therefore reconstructed our own consumer baskets based on the composition proposed by Paolo Malanima in his study on English and Italian real wages (see Table 1.1). The reason why we prefer this methodology over the more popular welfare ratios proposed in the earlier mentioned work of Robert Allen is twofold. First and foremost, the latter has received some well-founded criticism on his assumptions of caloric requirements, compromising only 2,000 kcal per day, which seems insufficient in the light of current recommendations for a working male adult.[115] Malanima has accordingly increased the caloric intake in his model to a more realistic 2,500-2,600 kcal per day.[116] The second reason is more pragmatic. In section three, we aim to compare the Flemish wages with those of Florence. Since Malanima has found some unexplainable discrepancies between Allen's wage series for late medieval Florence and the published sources he relied on, the corrected series by Malanima are best equipped for our purposes.[117]

Malanima's consumer baskets include six different food products as well as one fuel and one textile product. It takes into account differences in climate, environment and cuisine. For example, the Italian basket includes olive oil and wine instead of the butter and beer that were common in the Northwestern European diet. Considering the similarity in temperature in both regions, we have allocated the same amount of fuel to the Flemish consumer basket as is present in the English one but changed the material from firewood to peat given its availability and popularity in the County of Flanders. The sources and methodologies used to reconstruct the price of each individual product can be found in Appendices 1.3 and 1.4. Similar to our wages, the data for our consumer baskets can be traced back to the last quarter of the thirteenth century, albeit it is somewhat fragmentary until the fourteenth century. Between 1275 and 1313, we lack observations for thirteen years though never more than two subsequent years.[118]

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[115] Jane Humphries, "The lure of aggregates and the pitfalls of the patriarchal perspective: a critique of the high wage economy interpretation of the British industrial revolution," *The Economic History Review* 66, no. 3 (2013): 698-703; Paolo Malanima, "Prezzi e salari, 1734-1860," in *Il Mezzogiorno prima dell'unita. Fonti, dati, storiografia.*, ed. Paolo Malanima and N. Ostuni (Soveria Mannelli: Rubbettino, 2013), 340-45.

[116] "When did England overtake Italy?," 49-51.

[117] The difference amounts to a staggering 60%. Ibid., 58.

[118] The missing years are 1275-1276, 1279-1280, 1282, 1284-1285, 1292, 1294-1295, 1297, 1301, 1313.

TABLE 1.1 THE COMPOSITION OF THE CONSUMER BASKETS FOR AN ADULT MALE

Product	Qty / year	unit	kcal/unit		kcal / day	
Food				*Italy*	*England*	*Flanders*
Bread (wheat)	200	kg	2,400	1315.1	1315.1	1315.1
Rye	130	l	2,200	783.6	783.6	783.6
Meat	15	kg	2,000	82.2	82.2	82.2
Eggs	40	pieces	60	6.6	6.6	6.6
Butter	6	kg	7,500	/	123.3	123.3
Olive oil	5	kg	9,000	123.3	/	/
Wine	150	l	700	287.7	/	/
Beer	210	l	400	/	230.1	230.1
Total				2,598	2,541	2,541
Non-food purchases				*Italy*	*England*	*Flanders*
Linen cloth	5	m	n/a	n/a	n/a	n/a
Firewood	365	kg	3,000	3,000	/	/
Firewood	730	Kg	3,000	/	6,000	/
Peat	644	kg	3,400	/	/	6,000

Sources: Malanima, "When did England overtake Italy?", 50. For peat weights and energy, see Appendix 1.3.

It is important to note that Malanima's and, thus by extension, our baskets do not contain housing prices, thereby ignoring one of the basic human needs. Rent prices are however hardly available for the fourteenth century and are difficult to standardise since information on the size and quality of the dwelling is rarely mentioned.[119] The rare estimates for the share of income reserved for rents in premodern societies do not provide a clear-cut solution because they vary from as little as five to twenty per cent.[120] For sixteenth-century Bruges, a figure between 5.4 and 7.0 per cent has been suggested. [121] The higher estimate of seven per cent will be used whenever we are trying to estimate the living standards for households.

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[119] For the County of Flanders, data only becomes sufficiently available from the late fifteenth century on. See for example: M. Boone, M. Dumon, and B. Reusens, *Immobiliënmarkt, fiscaliteit en sociale ongelijkheid te Gent, 1483-1503* (Kortrijk1981); Peter Stabel, "Conjunctuur en immobiliënmarkt in Oudenaarde: einde 15e-16e eeuw," *Handelingen van de Geschied- en Oudheidkundige Kring van Oudenaarde, van zijn kastelnij en van den Lande tusschen Maercke en Ronne* 26 (1989).

[120] William Baer, "Stuart London's standard of living: re-examining the Settlement of Tithes of 1638 for rents, income, and poverty," *The Economic History Review* 63, no. 3 (2010): 624-25.

[121] Heidi Deneweth, "Real property, speculation and housing inequality. Bruges, 1550-1670," in *Inequality and the City in the Low Countries (1200-2020)*, ed. Bruno Blondé, et al., Studies in European Urban History (1100-1800) (Turnhout: Brepols, 2020), 264.

Equally problematic is the lack of local price series. Most of our data originates from institutions in the cities of Bruges or Ghent, where prices were probably higher compared to the many small towns and villages in the countryside. As a consequence, we probably underestimate living standards outside the large urban centres. The little comparable evidence we managed to gather suggests a price difference of around twenty per cent for grains though other products, such as butter, seemed to be more expensive outside Ghent and Bruges.[122]

In order to calculate welfare ratios, we have divided the nominal wage of skilled and unskilled male labourers by the total price of the basket for any given year. We have opted for a Laspeyres index, which simply means that the quantity of each good reported in Table 1.1 remained fixed for the entire period under consideration. Alternatively, one could opt for a geometric index, which allows labourers to change their consumption based on the relative price difference. When prices increase, they can cut their spending on the more qualitative but more expensive goods in one subcategory in favour of cheaper products of the same group. For example, households probably substituted part of their wheat-consumption for oats during the Great Famine of 1315-1317.[123] While this type of behaviour better reflects real consumer patterns, the options in our model of six foodstuffs and only one item for fuel and cloth respectively are too limited to warrant a geometric index. The only significant choice would be the trade-off between meat, bread and rye. It is therefore unsurprising that Allen, even when using a slightly more diverse basket, finds little difference between using one or the other type of index. He ultimately prefers a Laspeyres index given that it always guarantees the caloric requirements and keeps the unit of measurement stable.[124] For our series, we have followed his reasoning. Before we turn to the resulting welfare ratios for the County of Flanders, we must first address a last methodological issue. Given the extent of the matter, encompassing more than half of the total population, it warrants its own section.

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[122] For grain, see Appendix 1.3. For butter we compared the series of A. Verhulst, "Prijzen van granen, boter en kaas te Brugge volgens de slag van het Sint-Donatiaanskapittel (1348-1801)," in *Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, ed. C. Verlinden (Bruges: De Tempel, 1965), 64-67; P. Vandewalle, "Prijzen van slachtvarkens, zout en boter te Geraardsbergen (15de eeuw)," ibid., 466.

[123] Philip Slavin, "Market Failure during The Great Famine in England and Wales (1315–1317)," *Past & Present* 222, no. 1 (2014): 18-22.

[124] His baskets also contained beans, cheese, soap, candles and lamp oil but did not include rye. Allen, "The Great Divergence," 419-24.

1.2 Women and children first. Household living standards

Like in most studies on medieval living standards, the vast majority of the wage data included in our database pertains to male building labourers. Although singles could account for an important share of the population, most men lived together with others, such as their wives, children, or grandparents. They pooled their income to provide for their needs. Households therefore constitute the most important economic unit when assessing living standards. Unfortunately, the observations for female and child earnings are too scarce in our database to retrace a clear evolution (N=25 for women and 13 for children). Information is especially lacking for the crucial period before the Black Death, obscuring the potential impact of mass mortality. This is problematic because no consensus exists on the extent or even direction of the trend during the Late Middle Ages.

One group of historians have argued that women experienced a Golden Age for labour during the second half of the fourteenth and fifteenth century, even more outspoken than men did. Because women were seen as less desirable labourers than men, they often received lower rates and were the first to be pushed out of the market whenever employment became scarce relative to the population. Reversely, the demographic shock of the Black Death and the resulting labour shortage not only allowed them to demand higher wages, just as their male colleagues did, but also provided them with more and new labour opportunities, thus greatly enhancing their economic position in society.[125] For example, Rodney Hilton remarked how countrywomen on some Leicester estates were performing the same jobs as their male colleagues around the year 1400.[126] Moreover, there is plenty of evidence that the renumeration of agricultural workers in late medieval England did not differ (much) between genders. [127] In a recent article, Alexandra de Pleijt and Jan Luiten van Zanden explored the premodern wage gap in a more systematic manner, comparing renumeration for similar tasks

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[125] See for example: Caroline M. Barron, "The 'golden age' of women in medieval London," *Reading Medieval Studies* XV (1989); P.J.P. Goldberg, *Women, Work, and Life Cycle in a Medieval Economy: Women in York and Yorkshire c.1300-1520* (Oxford: Oxford Clarendon Press 1992); Tine De Moor and Jan Luiten Van Zanden, "Girl power: the European marriage pattern and labour markets in the North Sea region in the late medieval and early modern period," *The Economic History Review* 63, no. 1 (2010).

[126] R.H. Hilton, American Council of Learned Societies, and History E-Book Project, *The English Peasantry in the Later Middle Ages: The Ford Lectures for 1973 and Related Studies* (Clarendon Press, 1975), 102.

[127] This mostly relates to piece rates. Simon A. C. Penn, "Female Wage-Earners in Late Fourteenth-Century England," *The Agricultural History Review* 35, no. 1 (1987): 8-9. John Hatcher, "Debate: Women's Work Reconsidered: Gender and Wage Differentiation in Late Medieval England," *Past & Present* 173, no. 1 (2001); Jane Whittle, "The Food Economy of Lords, Tenants, and Workers in a Medieval Village: Hunstanton, Norfolk, 1328-48," in *Peasants and Lords in the Medieval English Economy*, ed. Maryanne Kowalewski, John Langdon, and Philipp Schofield, The medieval countryside (Turnhout: Brepols, 2015). For a different view based on time rates, see: Sandy Bardsley, "Women's Work Reconsidered: Gender and Wage Differentiation in Late Medieval England," *Past & Present*, no. 165 (1999).

performed by men and women in several European regions. They found that the latter group was structurally paid less than the former, but the ratio varied greatly between time and space. In Northwestern Europe, the gap was initially narrow and relatively stable (women earned ca. 75% of what their male colleagues earned), even before the outbreak of the pandemic, but rapidly increased from the sixteenth century on. Interestingly, the Southern Low Countries stand out as one of the most equal regions during the Middle Ages (women only earned 7% less than men). By contrast, women's wages were culturally fixed in Southern Europe, where they received around half of the renumeration paid to men. Here, the demographic crisis had a clearer impact on the wage gap but only very brief: already after the 1360's, the ratio returned to its previous level. Although neither region thus demonstrates a long-lasting catch-up of women's wages, de Pleijt and van Zanden remain positive about the role of the Black Death, hinting at the importance of labour opportunities, though they don't elaborate on this topic.[128]

Our own observations for women's wages are presented in Table 1.2. With the exception of two female tilers, they all pertain to unskilled work, such as hauling building materials and digging. Their remuneration is compared to the rates paid to their male colleagues performing similar types of labour for the same institution in the same or surrounding year. Because the data is too limited to work with modes, we have incorporated the variety in wages for both sexes through a range of ratios, encompassing the minimum and maximum difference. On average, it seems that women earned about 70% of men's remuneration in the two centuries after the Black Death. However, a declining trend may be discerned over time. In the second half of the fourteenth century, the wage gap seems less outspoken compared to the late fifteenth and first half of the sixteenth century. The ratio between women's and men's wages declined from 79% to 64%. Again, the observations are too fragmentary to make any definitive conclusions, but they do seem to closely mirror the trends described by de Pleijt and van Zanden for Northwestern Europe and the Southern Low Countries.

A second group of historians has been less optimistic about the economic position of women during the late medieval period. They believe that the patriarchal structure of society and its norms severely limited the scope of opportunities, even in times of labour shortage. As a result, women were mostly confined to low-skilled and low-paying jobs.[129] In this perspective,

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[128] Alexandra de Pleijt and Jan Luiten van Zanden, "Two worlds of female labour: gender wage inequality in western Europe, 1300–1800," *The Economic History Review* 74, no. 3 (2021). For the discussion on the Black Death, see p. 623 and p. 628.

[129] See for example: M.C. Howell, *Women, Production, and Patriarchy in Late Medieval Cities* (Chicago: University of Chicago Press, 1984); Judith Bennett, "" History That Stands Still": Women's Work in the European Past," *Feminist*

TABLE 1.2 THE GENDER WAGE GAP IN THE SOUTHERN LOW COUNTRIES

Year	Location	Institution	Occupation	N	Wage gap (% of men's)	
					Min	Max
1352	Lille	Hospital	Tiler	1	66	87
1355	Lille	Hospital	Tiler	1	38	58
1363	Mons	City	Porter	7	50	100
1364	Mons	City	Porter	3	80	80
1365	Mons	City	Porter	1	100	100
1376	Eiesluis	Water board	Digger	1	75	75
1389	Eiesluis	Water board	Digger	1	50	150
1457	Diksmuide	City	Labourer	1	50	50
1476	Geraardsbergen	City	Labourer	1	50	67
1483	Geraardsbergen	City	Labourer	1	50	100
1505	Ghent	Hospital	Labourer	1	67	100
1526	Ghent	Hospital	Labourer	1	71	125
1532	Blankenberge	City	Labourer	1	40	29
1546	Aalst	City	Labourer	1	50	100
1551	Geraardsbergen	City	Labourer	1	43	75
1553	Aalst	City	Labourer	1	38	75
1556	Aalst	City	Labourer	1	38	60
Average						
1350-1400					66	93
1450-1560					50	78

Sources: see Appendix 1.1

our data on the wage gap for similar tasks is not very informative. Instead, we should focus on gender differences in occupational distributions among workers and the extent to which women could actually participate in the labour market. Indeed, a rather bleak image emerges from the *catasto* of 1427, a tax register for the city of Florence, famous for its detailed occupational and demographic information. Without considering widows, half of the single women listed with an occupation in the tax records were either employed as domestic servants (21.2% of total) or living in a convent (28.8%). Another fifth was active in low-paying jobs of the textile industry. For example, 15-year-old Caterina Salvestro was trying to make ends meet by shearing sheep and Piera Giovanni still spent her days spinning at the age of 79

studies 14 (1988); M.E. Mate, *Daughters, Wives, and Widows After the Black Death: Women in Sussex, 1350-1535* (Boydell Press, 1998).

years.[130] Only one per cent of all workplaces were run by a woman. The only exception to this picture of limited opportunities were widows because they were often allowed to continue the business of their deceased spouse. The *catasto* of 1427 shows them as skilled workers and artisans such as carpenters, goldsmiths, bakers, etc. Although tax registers remain mute on the occupation of married women, the aforementioned practice hints at their contribution to the household income. Many married women were not active in the formal economy but rather participated by helping their husbands within the informal sphere of the household, which is probably why they were considered experienced enough to continue the work of their late spouses.[131]

For the Southern Low Countries, Peter Stabel has identified similar patterns of employment for single and married women. During the fourteenth century, references to female workers and, more broadly, to women as political or economic independent actors started to disappear from legislative texts. According to him, this evolution is connected to the reorganisation of the urban textile industry in which guilds came to dominate the labour markets. Such an economy was no longer based on the contribution of individual workers but primarily depended on the output of households, supervised by the male head. In other words, women were systematically pushed out of occupations controlled by guilds and into the realm of the household economy. Given that labour shortages were not as severe in the cities of the Southern Low Countries as elsewhere thanks to immigration, Stabel does not believe that the Black Death helped to halt or alleviate such a trend of restricting opportunities.[132] For the countryside, Lies Vervaet has likewise characterised the late medieval period as one of declining labour opportunities for female harvest workers, at least on large farms in Coastal Flanders and from a later date on. Before the Black Death, female harvest workers were regularly employed as reapers and received similar wages as their male colleagues. By the sixteenth century, the shift from grain cultivation towards cattle breeding, technological innovations, and the growing availability of male labourers had pushed women into low paying jobs, such as binding sheaves.[133]

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[130] D. Herlihy and C. Klapisch-Zuber, "Online Catasto of 1427 [Machine readable data file based on D. Herlihy and C. Klapisch-Zuber, Census and Property Survey of Florentine Domains in the Province of Tuscany, 1427-1480.]," ed. David Herlihy, et al. (Providence: Brown University, 2002).

[131] R.A. Goldthwaite, *The Economy of Renaissance Florence* (Johns Hopkins University Press, 2009), 370-72.

[132] Peter Stabel, "Working Alone? Single Women in the Urban Economy of Late Medieval Flanders (Thirteenth-Early Fifteenth Centuries)," in *Single Life and the City 1200-1900*, ed. Julie De Groot, Isabelle Devos, and Ariadne Schmidt (Houndsmill: Palgrave, 2015); "Working women and guildsmen in the Flemish textile industries (13th and 14th century). Gender, labor and the European Marriage Pattern in an era of economic change," (forthcoming).

[133] Lies Vervaet, "Women and wage labour in rural Flanders in the fifteenth and sixteenth centuries," *Agricultural History Review* 67, no. 2 (2019).

In a more quantitative approach, Sara Horrell, Jane Humphries, and Jacob Weisdorf have tried to retrace and compare the annual income of married and single women in England between 1260 and 1850. They argue that the labour market was highly segmented for women during the medieval period: singles were mainly employed as servants on a yearly basis, whereas married women engaged mostly in much shorter and casual contracts. Daily wages for casual work seem to have kept up with the trend observed for male labourers until the late fifteenth century. This data seems to confirm the observations of the more optimistic group of historians, though the authors remark that married women rarely performed paid work for more than a handful of days. Even during the acute labour shortage immediately after the Black Death, the participation rate of women in this kind of activities seemed to have been low, amounting only to circa 15 à 20% of the total labour force. Again, it seems that married women were mainly active within the household. They helped their husband with his trade but also took care of the children and the housekeeping, both quintessential tasks that are difficult to value economically.[134] By contrast, the rewards for annual service remained relatively stable between the thirteenth and the middle of the sixteenth century. There was no significant or long-lasting increase in renumeration after the demographic shock of the different plague waves. In this sense, single women were actually losing grounds in comparison to their male colleagues after the Black Death.[135] Unfortunately, there is currently no similar, quantitative information available on the participation rates of female labourers and the nature of their employment in the Southern Low Countries that would allow us to retrace their evolution before and during the Golden Age for labour.

If our knowledge on women's work is already limited, that of children's work is even more obscured by a paucity of data. To some extent, the experience of women can be extrapolated to this group as they too were considered a secondary labour force compared to adult men. In this sense, opportunities and pay probably peaked after the Black Death. However, the employment of children also followed its own logic and set of rules because they were still acquiring their working skills. Already from an early age on, about six years old, minors were performing different, often gender specific tasks within the household. Boys helped their fathers in the shop, collected firewood, or ran errands, while girls aided their mothers with housekeeping and needlework. In their early teens but sometimes before, children started to learn more specific skills either from their parents or from someone outside the household

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[134] For a contemporary attempt at measuring the economic value of housekeeping, see: Benjamin Bridgman et al., "Accounting for household production in the national accounts, 1965-2010," *Survey of Current Business* 92 (2012).

[135] Jane Humphries and Jacob Weisdorf, "The Wages of Women in England, 1260–1850," *The Journal of Economic History* 75, no. 2 (2015); Sara Horrell, Jane Humphries, and Jacob Weisdorf, "Family Standards of Living Over the Long Run, England 1280–1850," *Past & Present* 250, no. 1 (2021).

through a work contract or an apprenticeship, which entailed a professional training and was mostly limited to boys.[136] In the countryside, teenage boys could care for a small flock or learned to plow the fields. In medieval cities, guilds often controlled the rules of apprenticeship: who could enter a contract, how many apprentices a master could have, how long the training lasted, etc.[137] Girls on the other hand were often employed as domestic servants until they married. The earlier-mentioned Florentine *catasto* of 1427 records several *fantine* of eight years old who worked as housekeepers in exchange for their daily upkeep and a small dowry when they reached marriageable age.[138]

Because children often lived-in with their employer and received part of their remuneration in kind, including lodging, clothing, food, and potentially the transfer of professional skills, it is very hard to estimate the monetary value of their entire pay and compare it with adult men's wages. Nevertheless, this is precisely what Sara Horrell and Jane Humphries attempted for children's labour between 1280 and 1860 in Britain. They adapted the earlier consumer baskets of Robert Allen to fit the needs of a minor and added their cost to the cash payment as an equivalent for the part in kind to arrive at the total wage.[139] Moreover, the two authors also included observations related to wages expressed entirely in cash (about half of the total observations for the medieval period). The resulting series show that children enjoyed a similar Golden Age for labour after the Black Death as their parents did. Daily welfare ratios roughly doubled between 1348 and 1450. Remarkably, the average nominal rates for casual children's labour surpassed those for adult women in this period, whereas the average remuneration for annual contracts was roughly similar until 1550.[140] Our own limited observations for casual work performed by minors do not support such ratios for the Southern Low Countries.

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[136] David Nicholas, "Child and Adolescent Labour in the Late Medieval City: A Flemish Model in Regional Perspective," *The English Historical Review* 110, no. 439 (1995); Paul Newman, *Growing up in the Middle Ages* (London: McFarland, 2007), 169-202.

[137] For the Southern Low Countries, see Bert De Munck, Raoul De Kerf, and Annelies De Bie, "Apprenticeship in the Southern Netherlands, c. 1400–c. 1800," in *Apprenticeship in Early Modern Europe*, ed. Maarten Prak and Patrick Wallis (Cambridge: Cambridge University Press, 2019).

[138] C. Klapisch-Zuber, *Women, Family, and Ritual in Renaissance Italy*, trans. L.G. Cochrane (Chicago: University of Chicago Press, 1985), 106-07.

[139] For a detailed criticism on this methodology, see 2.1 Pick a number.

[140] Sara Horrell and Jane Humphries, "Children's work and wages in Britain, 1280–1860," *Explorations in Economic History* 73 (2019).

TABLE 1.3 THE REMUNERATION OF CHILDREN IN THE SOUTHERN LOW COUNTRIES

| Year | Location | Institution | Occupation | N | Wage gap (% of men's) | |
					Min	Max
1324	Ypres	City	Candle bearer	2	(9)	(13)
1325	Ypres	City	Candle bearer	1	(14)	(14)
1365	Eiesluis	Water board	Digger	1	67	67
1366	Eiesluis	Water board	Digger	1	55	55
1367	Eiesluis	Water board	Digger	3	38	75
1376	Eiesluis	Water board	Digger	2	50	50
1378	Eiesluis	Water board	Digger	1	38	38
1413	Eeklo	City	Assistant	1	67	67
1470	Lissewege	Monastery	Assistant	1	33	33
Average					50	55

Sources: See Appendix 1.1

Notes: Figures in brackets excluded from the average, see main text for discussion

Similar to the gender wage gap, Table 1.3 showcases the difference between the nominal daily wages of boys and male adults performing unskilled labour for the same institution in the same year. The datapoints predating the Black Death probably pertain to a task that encompassed less than a day and may therefore not be representative. Alternatively, they might refer to very young children based on the simplicity of the task performed. Given that references are extremely rare for this period, we have nevertheless opted to include it in the table but not in the calculations for the average ratio. Judging from the physically more demanding nature of the other works included in Table 1.3, like digging and hauling bricks, the pay rate probably relates to those of teenagers. Observations for the fourteenth and fifteenth century suggest that these children earned the equivalent of about half the men's wages, which is circa 20% less than women did in this period (see Table 1.2). A similar ratio of 1:2 between boys and men can be found in the Aragonese ordinances of 1350 that tried to limit the inflation caused by the demographic losses in the wake of the Black Death, including the remuneration for building labourers older and younger than fourteen years old.[141] They are probably reminiscent of the relationship the law makers envisioned as customary before the advent of plague. For the Southern Low Countries, no similar ordinances have currently

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[141] Charles Verlinden, "La grande peste de 1348 en Espagne. Contribution à l'étude de ses conséquences économiques et sociales," *Revue belge de Philologie et d'Histoire* 17, no. 1 (1938): 119-20.

been identified.[142] In combination with the limited sample size, it is therefore impossible to determine whether the wage gap between boys and men was stable in the years surrounding the Black Death.

Again, we should not rely solely on the evolution of nominal wages but also take into account the different participation rates and the nature of the work. In fourteenth-century Marseille, the higher pay for children's labour compelled many households to curtail the vocational training of their offspring. After all, apprenticeship or formal education entailed an opportunity cost: on the one hand, the formation of human capital could generate a higher income in the long-term thanks to the skill premium, but on the other hand remuneration during training was lower or non-existent compared to casual work and apprenticeship often required some costs upfront, like an entrance fee. When wages for minors soared due to the labour shortage after the Black Death, the opportunity cost increased significantly. Subsequently, in Marseille, the number of apprenticeships declined steeply in this period, whereas the number of work contracts for minors increased inversely. Most tellingly, the drop-off was most pronounced in the guilds with the highest entrance fees.[143] Whether this evolution also occurred in the Southern Low Countries is doubtful. Several scholars have argued that investment in human capital increased in Northwestern Europe after the Black Death thanks to decreasing interest rates, favourable institutions, and lower fertility rates, which in turn resulted in higher economic performance in the following centuries compared to other parts of the European continent (see also the Little Divergence in 1.4).[144] In this case, the share of children fully engaged in the labour market and, by extension, their share in the household income may have declined in the Southern Low Countries over time.

The picture of women's and children's labour becomes even more complex and harder to track if we realise that household composition also changed continuously during the Late Middle Ages due to a variety of causes. Most importantly, plague seemed to have reduced the size of the household. As we have seen in the general introduction (see I.2 Plague and places), some waves were labelled as the plague of children. A declining trend in the average number of children per family is indeed visible for the area around fourteenth-century Oudenaarde,

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[142] Munro, "Wage-stickiness," 198-99; Cohn, "After the Black Death: Labour Legislation and Attitudes Towards Labour in Late-Medieval Western Europe," 462.

[143] F. Michaud, *Earning Dignity: Labour Conditions and Relations During the Century of the Black Death in Marseille* (Brepols Publishers, 2016).

[144] Şevket Pamuk, "The Black Death and the origins of the 'Great Divergence' across Europe, 1300–1600," *European Review of Economic History* 11, no. 3 (2007); Jan Luiten van Zanden, "The skill premium and the 'Great Divergence'," ibid.13, no. 1 (2009); De Moor and Van Zanden, "Girl power."; Alexandra M. de Pleijt, "Human capital formation in the long run: evidence from average years of schooling in England, 1300–1900," *Cliometrica* 12, no. 1 (2018).

a city situated some twenty kilometres south from Ghent. The *poortersboeken* listed all the offspring of a deceased burgher as citizenship was hereditary. They reveal that the average number of children per outburgher (i.e. a burgher living in the countryside) fell from 3.2 in 1312-1331 to 2.90 in 1370-1379. Likewise, the figure in probate inventories declined from 2.24 in the 1350's to 1.74 in the 1370's.[145] In Lyon, last wills also show a significant variation in household size over time. Here, the average number of children dropped from nearly four in the 1340's to only one in the second half of the fourteenth century, before steadily increasing to five by the 1480's.[146] All these sources obviously suffer from a certain bias and aren't necessarily representative for the absolute trend found in the larger society, but they are most likely indicative for the relative trend.

According to Tine de Moor and Jan Luiten van Zanden, changes in the household composition during the late medieval period were structural. They believe that the European marriage pattern emerged in Northwestern Europe after the Black Death. It is characterised by late marriage, a relatively large share of singles, and neolocality. This last concept refers to the practice when newlyweds move out of their parental house to form a new household instead of living with extended kin. As a consequence of this marriage pattern, households became smaller, usually encompassing only the parents and two to three children.[147] Other scholars have been more sceptical about the timing and the representativeness of the European marriage pattern. For example, the earlier mentioned Jane Humphries and Jacob Weisdorf argue that the low remuneration for annual servants in medieval England limited the opportunities for single women to build up their fortune and postpone marriage. Instead, the comparatively high casual wages, mostly earned by married women, must have been an incentive to marry early.[148] More recently, the focus has shifted from pinpointing the emergence of a single demographic pattern to the varying ways in which household compositions changed in relation to economic circumstances, but a clear historiographical consensus for the late medieval period has not yet crystallised.[149]

What is clear from this overview of children and female labour, is that computing household living standards is extremely complex. For the medieval County of Flanders, we simply lack the necessary information to reliably model how participation rates, remuneration, and

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[145] Thoen, "Landbouwekonomie en bevolking," 108-18.

[146] Marie-Thérèse Lorcin, "Les Campagnes de la région lyonnaise aux XIVe et XVe siècles" (PhD Thesis, Université de Lyon, 1974), 210-44.

[147] De Moor and Van Zanden, "Girl power."; Nico Voigtländer and Hans-Joachim Voth, "How the West "Invented" Fertility Restriction," *American Economic Review* 103, no. 6 (2013).

[148] Humphries and Weisdorf, "The Wages of Women in England, 1260–1850," 424-25.

[149] Sarah G. Carmichael et al., "The European Marriage Pattern and Its Measurement," ibid.76, no. 1 (2016).

household composition changed over time.[150] To this we could add several other issues, such as the important variations between social groups in the aforementioned variables and in their related consumption of goods. For instance, richer households tend to be larger and consume a greater variety of foodstuff than those lower on the social ladder. In this context, simply dividing wages of skilled and unskilled workers by the same basket for an identically sized household does not reflect reality.[151] How then do we deal with all these challenges in our reconstruction of welfare ratios? In the subsequent pages, we have chosen to focus solely on the daily remuneration of the male head and only compute daily welfare ratios for households based on his income alone. The representativeness of the result is therefore limited. It is nevertheless a useful starting point to explore the limits of the traditional evidence and explanations for a Golden Age for labour because most studies are based on a similar dataset of men's wages. Extensive modelling with little to no observations for other household members would only result in a statistical fiction and complicate the comparison with established series for other regions. Alternative proxies for the living standards of labourers and households are explored in the next chapters and put the results in perspective. For now, we must restrict ourselves to the daily remuneration of men in the County of Flanders.

1.3 With ups and downs. The evolution of welfare ratios

Our new series for male building labourers in metropolitan Ghent and Bruges, Coastal Flanders, and Inland Flanders are presented in Figure 1.3. At a glance, we can distinguish four different long-term trends (1275-1300; 1301-1375; 1376-1476; 1477-1550). Table 1.4 reports for every phase, region, and skill level the average welfare ratio of a single male. In addition, it also tries to estimate the equivalent number of baskets a household could consume with a similar wage. Again, this does not include any income besides the labour of the male head. Given that our series pertain foremost to urban environments, we have assumed that a household consisted of 4.5 members, a figure most historians have adopted for towns in the Southern Low Countries.[152] For the dietary needs of the individual members, we have assigned the wife 2,000 kcal and each child 1,500 kcal following the example of

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[150] For an attempt of modelling these variables and computing the welfare ratios in medieval England, see Horrell, Humphries, and Weisdorf, "Beyond the male breadwinner."

[151] For a case study, see Jord Hanus, "Real inequality in the early modern Low Countries: the city of 's-Hertogenbosch, 1500–1660," ibid.66, no. 3 (2013).

[152] Peter Stabel, *De kleine stad in Vlaanderen: bevolkingsdynamiek en economische functies van de kleine en secundaire stedelijke centra in het Gentse kwartier (14de-16de eeuw)* (Brussels: Paleis der Academiën, 1995), 74-76; Prevenier, "La démographie des villes," 255-75.

Robert Allen.[153] As we have outlined in the first section, we provide 2,500 kcal for the husband, totalling 8,250 kcal for the entire household. We also added a fixed seven per cent cost to the consumer baskets to account for rents (see 1.1 In search of the impossible). They are not included in the welfare ratios of single labourers to allow anyone to make their own assumptions. Based on all this information, we calculated how many days the male head would have to work in order to purchase one basket for every day of the year for his family. The implied working year is not a measure of factual industriousness. Instead, it helps to better visualise the extent of living standards. Historians generally assume that fully employed labourers worked about 250 days during the late medieval period.[154] Although this estimate is highly contentious and will be scrutinised in Chapter Two, it may serve here as a crude threshold for the need of additional income. If the implied working year exceeded 250 days, we may speculate that women and children were needed to compensate the deficit.

The first phase encompasses the start of our series until 1300. Stunningly, real wages were relatively high in the last quarter of the thirteenth century for both skilled and unskilled workers. While the peak in 1288-1289 may be overestimated due to the price of our consumer baskets being too reliant on grain prices that are very favourable in those years, the data becomes much more reliable afterwards and still show incredible levels of welfare. Skilled labourers in the building industry could on average afford eight to fourteen consumer baskets with their daily wage. These numbers imply that a skilled artisan only had to work for 90 to 163 days per year to provide for all his family's basic necessities (see Table 1.4). Unskilled labourers had to toil almost twice as much to achieve the same level of welfare. The implied minimum working year compromised 181 days in the metropoles and 203 days in Inland Flanders. They were still far from being the pauper the grand narratives would have us believe considering the estimate of 250 days for full time employment (cfr. supra). There was however one exception. In Coastal Flanders, unskilled workers needed to labour a whopping 402 days to fulfil their household needs! Faced with this impossibility, they must have had additional forms of income or relied on multiple household members to earn a living. Even so, the situation must have been precarious. If the wife and two children were able to find equal employment, we may estimate that they each had to perform casual wage labour for about 90 days to achieve a welfare ratio of 1, based on the average wage gap between women and children on the one hand and men on the other (see Tables 1.2 and 1.3). In a context of high population pressure and highly competitive labour markets, this seems unlikely but not impossible.

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[153] Allen, "The Great Divergence," 426.
[154] See for example: Scholliers, *Loonarbeid en honger*, 84-87; Allen, "The Great Divergence."

FIGURE 1.3 WELFARE RATIOS OF SKILLED AND UNSKILLED LABOURERS PER REGION

A) Bruges and Ghent
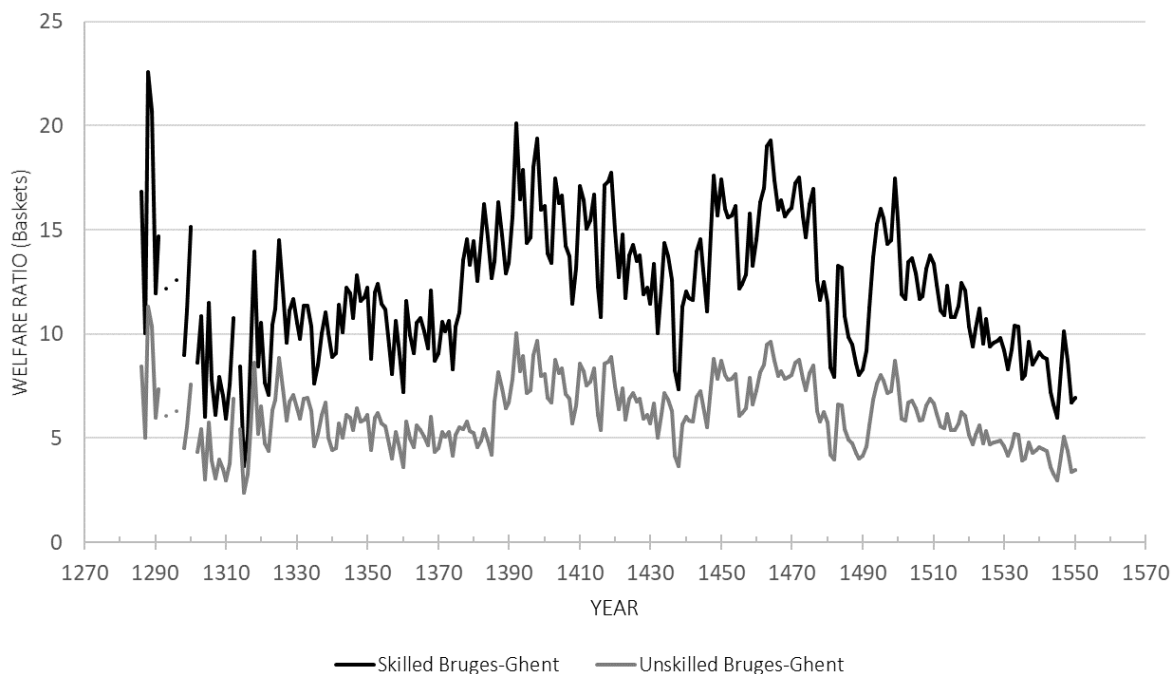
B) Inland Flanders

C) Coastal Flanders
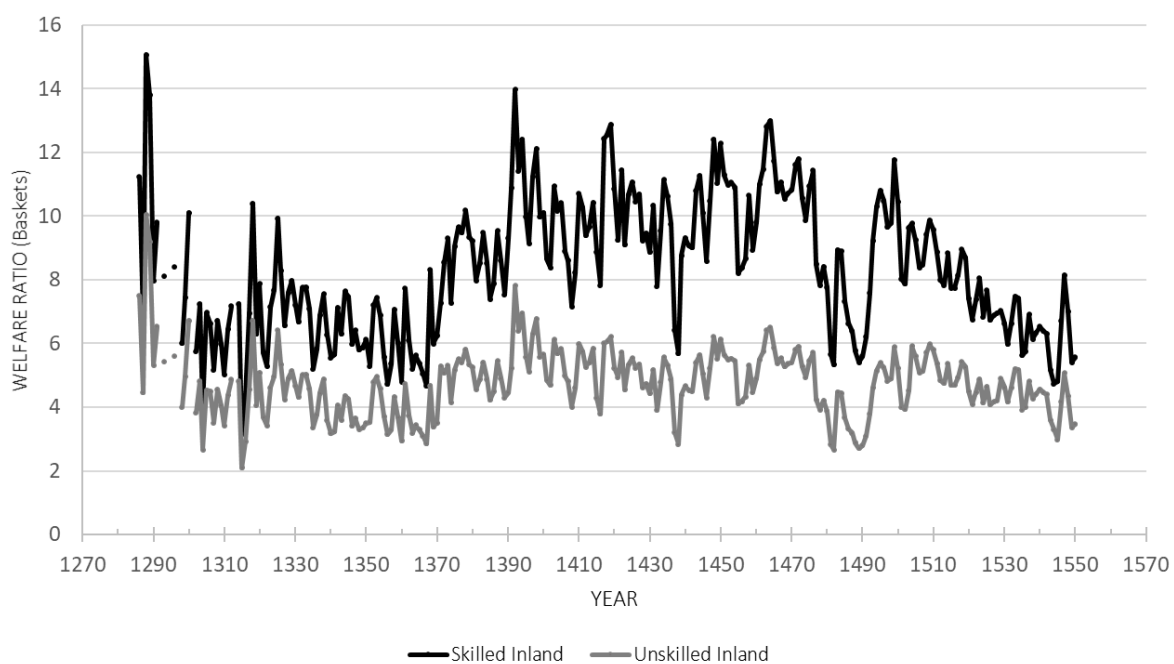
Skilled Coastal — Unskilled Coastal
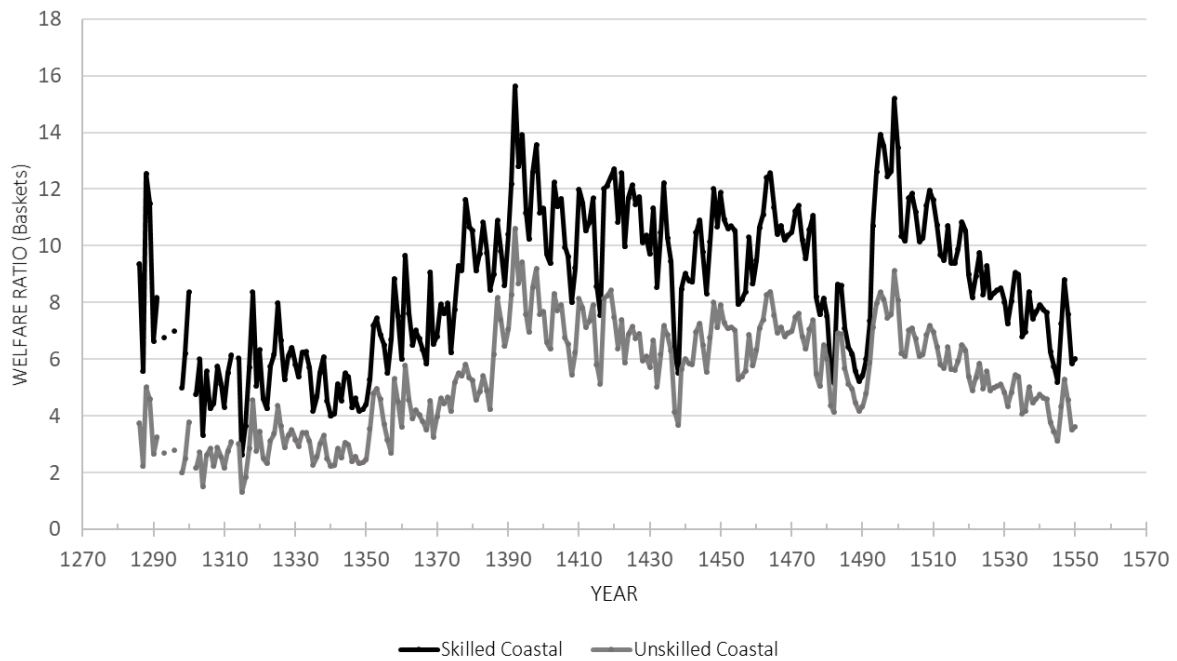
TABLE 1.4 WELFARE RATIOS OF SINGLE LABOURERS AND HOUSEHOLDS

	Skilled worker			Unskilled worker		
	Single (baskets)	*Household (baskets)*	*Working year (days)*	*Single (baskets)*	*Household (baskets)*	*Working year (days)*
Bruges and Ghent						
1275-1300	14.27	4.04	90	7.13	2.02	181
1301-1375	9.86	2.79	131	5.33	1.51	242
1376-1476	14.62	4.14	88	7.14	2.02	181
1477-1550	10.79	3.06	120	5.39	1.53	239
Inland Flanders						
1275-1300	9.51	2.69	136	6.34	1.80	203
1301-1375	6.57	1.86	196	4.13	1.17	312
1376-1476	10.05	2.85	128	5.24	1.48	246
1477-1550	7.61	2.16	169	4.42	1.25	292
Coastal Flanders						
1275-1300	7.92	2.24	163	3.21	0.91	402
1301-1375	5.87	1.66	220	3.28	0.93	393
1376-1476	10.49	2.97	123	6.78	1.92	190
1477-1550	8.87	2.51	145	5.6	1.59	230

Notes: Single refers to the welfare ratio of a labourer living alone, whereas household refers to the ratios for an average household of 4.5 members who is entirely dependent on the labour income of its male head. We assumed 2,500 kcal per day for adult men, 2,000 for women and 1,500 for children. Rents are included in the household welfare ratios as a fixed cost of 7% of the household expenditures. They are not included in the single welfare ratios to allow anyone to make their own assumptions.

Sources: For household composition: Stabel, *De Kleine Stad in Vlaanderen*: 74-76

The Late Medieval Crisis hit living standards hard. From the late 1290's, real wages went into a free fall until they hit rock-bottom in 1315, when the whole of Northwestern Europe was struck by one of its worst subsistence crises.[155] Two destructive wars with France (1297-1305 and 1314-1316) and their financial repercussion in the form of heavy taxes seem to have weighted down on the standard of living. During the Great Famine of 1315-1317, welfare ratios plummeted to alarming levels. Even if labourers could have found full employment in these dire times, there were simply not enough days in a year to earn enough wage income to provide for their families.[156] Indeed, the famine would take a heavy toll: in Bruges, 5.5 per cent of the total population perished.[157] The following years welfare ratios quickly recovered but would never reach the levels of the late thirteenth century. Notwithstanding some medium-term cycles of increasing (1318-1330 and 1340-1353) and decreasing real wages, the amount of consumption baskets that labourers could buy fluctuated between six and ten for skilled and between three and five for unskilled workers during the remainder of the second phase. Table 1.4 suggests that in order to feed, shelter and cloth their family, unskilled wage earners had to work 242 to 393 days per year, depending on the region. Even for the high-wage economies of Ghent and Bruges, the numbers suggest that they did not have much leeway if any at all. In one third of the observed years, the implied minimum working year surpassed the threshold of 250 days. For Inland and Coastal Flanders, this was the case for the vast majority of years. In a time of economic recession, when the crucial textile industry was facing its worst crisis, these numbers paint a bleak picture for the unskilled workers and their families.

Remarkably, our third phase doesn't start with the Black Death. Contrary to the teachings of the traditional models, the demographic shock did not signal a structural break for the majority of our wage series. A sudden jump in welfare ratios only occurred between 1375 and 1390 in Bruges, Ghent, and Inland Flanders. In this sense, the timing of the wage increase seems similar to the one observed for England.[158] Again, the case of Coastal Flanders seems to be the exception. Here, real wages already began to rise from the 1350's on, but this is more of a catch-up to the prevailing levels in the County than a new height of living standards. Moreover, the general increase is not as staggering as in the rest of Europe. Wage earners in

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[155] Sam Geens, "The Great Famine in the county of Flanders (1315–17): the complex interaction between weather, warfare, and property rights," *The Economic History Review* 71, no. 4 (2018).

[156] An unskilled labourer would have to work for 348 days between 1315 and 1317 in Bruges. The first year was exceptionally harsh, requiring 546 days, which is more than two full-time workers could labour in a year!

[157] H. Van Werveke, "La famine de l'an 1316 en Flandre et dans les régions voisines," *Revue du Nord* 41, no. 161 (1959): 5-12.

[158] C. Dyer, *An Age of Transition?: Economy and Society in England in the Later Middle Ages* (Oxford University Press, 2005).

Bruges, Ghent, and Inland Flanders saw their welfare ratios go up by roughly one third to a half, whereas those in Florence and London had witnessed more than a doubling in the second half of the fourteenth century (see 1.4 Under pressure?).[159] These gains look even less impressive if we compare the best quarter of the third phase (1450-1475) with the last quarter of the thirteenth century. Welfare ratios were only eleven per cent higher during the Golden Age for labour in Bruges and Ghent. Unskilled workers in Inland Flanders even witnessed a decline of sixteen per cent![160] This does not mean that we should reject the notion of a golden age. The share of the population earning higher wages was probably greater than before, something we will discuss later on (see 1.5 A touch of Smith). In addition, without more (robust) data it is unclear if the last quarter of the thirteenth century was an exception, but the third phase was certainly a prolonged period of prosperity, lasting an entire century. Between 1376 and 1476, the average minimum implied working year to supply a family had dropped everywhere below the threshold of 250 days. Only the unskilled labourers in Inland Flanders still faced frequent problems, surpassing the threshold in one out of every three years. In the whole County of Flanders, there is also one important period of decreasing living standards between 1420 and 1440, reaching its nadir with the famine of 1437-1439.[161] The subsistence crisis stands out as the only time in the third phase that the wages of unskilled labourers in the metropoles were inadequate to provide for the basic needs of a family, even in the case of full employment.[162]

After a quick return to the high welfare ratios in the following three decades, the Golden Age came at its end. The standard of living took a universal nosedive during the short but turbulent reign of Mary of Burgundy (1477-1482) and the subsequent revolt against her husband Maximilian (1483-1492). Unskilled wages fell below or stayed marginally above the poverty line during the whole duration of the political turmoil with an average implied working year of 248 to 369 days, depending on the region. The recovery of the next decade was short-lived as a structural and prolonged decline set in. By 1530, welfare ratios had reached the same levels as they did during the disastrous Late Medieval Crisis. Yet the bottom

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[159] Unskilled labourers gained a 34 per cent increase and skilled labourers 48 per cent compared to the second phase.

[160] Welfare ratios dropped from 6.38 in 1275-1300 to 5.38 baskets in 1450-1475. Such divergent trends in Inland and Coastal Flanders have already been argued in Erik Thoen and Tim Soens, "The family or the farm: a Sophie's choice? The late medieval crisis in Flanders," in *Crisis in the Later Middle Ages. Beyond the Postan-Duby Paradigm*, ed. J. Drendel, The medieval countryside (Turnhout: Brepols, 2015), 199-201.

[161]For a detailed discussion of the famine see: Nicolas Barla, "Pour la necessitet du povre peuple. La gestion des crises alimentaires dans les Pays-Bas méridionaux en période d'affirmation des pouvoirs urbains et princiers (XIe-XVe siècle): Chronologie des crises, analyse historiographique, étude de cas (Lille et Mons au XVe siècle)." (PhD thesis, Université Libre de Bruxelles, 2020), 255-90.

[162] The implied minimum working year was on average 288 days during the famine with a peak of 352 days in 1438.

was not in sight and ratios dropped even further until the end of the sixteenth century. The fourth phase signalled the end of the medieval levels of welfare. Based on wages expressed in litres of wheat, labourers in the County of Flanders would have had to wait until the end of the nineteenth century before they could enjoy the same incredible standards of living again as they did during the Golden Age.[163] The fourth phase also marked a fundamental change in the way labour markets were organised. During the last two decades, the regional series converged with virtual no difference between unskilled workers and a strongly diminished premium, less than twenty per cent, for skilled workers in the metropoles.

1.4 Under pressure? The role of demography

So how do we explain those ups and downs? Do the prime movers suggested by the traditional models fit the Flemish trends or should we look for other variables? First of all, let us address the elephant in the room: the apparently limited impact of the Black Death and, by extension, the subsequent plague waves. In the general introduction, we have seen that the County of Flanders did not escape the demographic crises as previously thought, but rather faced mortality rates comparable to those in the rest of the continent. Migration from the countryside towards towns probably helped to keep up the population in the latter, but overall levels certainly declined until the last quarter of the fourteenth century. In the fifteenth century, a rapid recovery was temporarily halted by a new decline in the last quarter of the fifteenth century. Pre-Black Death levels were probably not achieved until somewhere in the sixteenth century. According to the neo-Malthusian logic, real wages should have moved in the opposite direction, but the attentive reader has probably noticed that our earlier description of welfare trends does not really fit into this model.

In theory, testing the relationship between population and real wages seems relatively straightforward: one only needs to run a regression with the two variables and see whether or not the correlation is significant. In practice, mapping these two variables proves more difficult. By its very nature, neo-Malthusian models can only be applied on the macro level. Labour markets can attract temporary workers from outside. As a result, wages can be high in one locality or subregion even though its permanent population is comparatively small. This occurs for example during harvest times on large farmsteads or during the construction of large buildings, such as palaces or churches. The premium is paid to attract workers and is thus not representative for the prevailing levels of remuneration. It is therefore necessary to

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[163] Vandenbroeke, "Prijzen en lonen als sociaal-economische verklaringsvariabelen (14e-20e eeuw)," 109-12.

choose the unit of analysis large enough, say a county or a kingdom. Unfortunately, continuous data on the total population of medieval Flanders is non-existent. In fact, we currently have only one estimate. Based on a wide variety of sources, such as militia lists and hearth taxes, Walter Prevenier approximated the number of inhabitants in 1469.[164] For the neighbouring Duchy of Brabant, more information is available. Hearth taxes are preserved and published for multiple years between 1374 and 1526.[165] Recently, Katherine Ball tried to model the demographic evolution in medieval Flanders by mirroring the trends in Brabant on the number derived by Prevenier. For the period before 1374, she applied the mortality figures given in secondary literature for the Black Death. The results are fifteen decennial estimates for the period between 1340 and 1530. Obviously, one can make many objections to her methodology and, as she herself concedes, the figures should not be taken at face value.[166] However, given the lack of alternatives, the estimates can serve as crude indications of population trends. The big demographic shocks of plague probably hit Flanders and Brabant at the same time. Contemporary sources confirm its occurrence in the latter region in thirteen out of the seventeen times it struck the former.[167] It is therefore possible that the population figures of both regions moved in roughly the same direction.

Before we can put the neo-Malthusian model to the test, we also need to convert our regional wages into a single series for the entire County. To this end, we relied on the estimates of the earlier mentioned study by Prevenier. We multiplied the decennial averages of skilled and unskilled wages for each region with its respective share in the total population of 1469.[168] Again, the methodology is not ideal. For example, the relative importance of each region in the total population or, more precise, in the total number of wage earners may have fluctuated over time. Given these imperfections in our data, we have chosen to treat both the cost of labour and demography as ordinal variables and perform a non-parametric hypothesis test. In layman's terms, we are not interested in the exact values, but rather test if lower population figures are associated with higher wages. The result of this test is not really

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[164] Prevenier, "La démographie des villes."

[165] J. Cuvelier, *Les dénombrements de foyers en Brabant (XIVe-XVIe siècle)*, 4 vols. (Brussels: Commission royale d'Histoire de Belgique, 1912).

[166] Katherine Ball, "The Role of Demographic and Monetary Factors in the Late Medieval Economies of England, Scotland and the Southern Low Countries (1351–1530)" (PhD thesis, University of Oxford, 2018), 108-15.

[167] Roosen and Curtis, "The light touch," Online appendix: Plague mentions in the Low Countries sources, 1349-499.

[168] The resulting formula was: $W_F = 0.554\,W_I + 0.312\,W_C + 0.134\,W_{BG}$ whereby W_F refers to the welfare ratio for the County of Flanders, W_I to those of Inland Flanders, W_C to those of Coastal Flanders, and W_{BG} to those of Bruges and Ghent.

surprising. Indeed, demography did not have a significant impact on skilled or unskilled real wages in the County of Flanders.[169]

The reason why the non-parametric test does not return a significant result lies in the contrasting movements of the variables during different periods. Upon closer inspection, real wages and population increased together between the last quarter of the fourteenth century and the end of the fifteenth century. The two decades between 1349 and 1369 stand out as the deadliest period in Flanders in terms of absolute deaths, mortality rates and frequency of plague waves.[170] Remarkably, welfare ratios declined by ten per cent during these years in Ghent, Bruges, and Inland Flanders compared to an equal period before (1328-1348). As we discussed earlier, living standards did improve quite substantially in Coastal Flanders, but due to its limited share in the total population, overall levels in the County remained virtually unchanged (see Figure 1.4). By contrast, the most important increases in welfare ratios occurred in the 1370's and 1390's.[171] For the fourteenth and fifteenth century, they make up two of the three decades for which we don't have any mentions of plague in Flanders in contemporary or later sources. Moreover, they mark the beginning of a phase of demographic recovery and should by neo-Malthusian logic have not been associated with increasing welfare ratios.[172]

One could argue of course that it was the cumulative effect of the recurrent plague waves rather than the separate occurrences that caused real wages to increase when the dust finally settled. Perhaps population had been so high before the Black Death that it took multiple disasters for it to reach critical levels.[173] Or perhaps the sudden decline in population created such confusion that the economy needed time to reorganise itself. The contemporary chronicler Gilles Li Muisit remarked for the neighbouring Tournaisis (see Map 1.1) that "because of a lack of farmers, the vineyards and lands remained uncultivated in many places [after the Black Death]".[174] Recent reconstructions of grain prices for different regions of the

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[169] Both skilled and unskilled wages returned a weak Kendall's tau coefficient of -0.257 with a significance of 0.181.

[170] Plague was mentioned in contemporary sources in 12 out of 21 years and mortality spikes were recorded in the nearby County of Hainaut for 17 years. The waves of 1349 and 1367 were one of the worst to ever hit the Southern Low Countries. Roosen and Curtis, "The light touch."

[171] As measured in decennial averages for the whole County relative to the previous decade. The only decade with a larger increase in real wages concerns the 1490's though this can mainly be attributed to the contrast with the severe crisis of 1477-1492. Moreover, the gains or, more precise, the recovery in living standards was not structural as opposed to the increases in the 1370's and 1390's.

[172] The other one being the 1440's. Roosen and Curtis, "The light touch," Online appendix: Plague mentions in the Low Countries sources, 1349-499.

[173] See for example A. R. Bridbury, "Before the Black Death," ibid.30, no. 3 (1977): 402-07.

[174] Translated from Latin. Henri Lemaître, *Chronique et annales de Gilles le Muisit, abbé de Saint-Martin de Tournai (1272-1352)* (Paris: Publications de la Société de l'histoire de France, 1906), 268.

County of Flanders reveal that the fourteenth-century plague waves were indeed often accompanied by severe price shocks and related food crises.[175] Nominal wages did increase before the 1370's and they did so more frequently than in any other period, but they might have been offset by the unprecedented frequency of demographic shocks. Ultimately, the reason for a lagged effect doesn't really matter in a neo-Malthusian model since it is primarily focused on long-term evolutions. In this perspective, we can ignore the strange timings of the increase in welfare ratios to some extent, but the fifteenth century poses a more problematic challenge to the narrative. The period is characterised by high and stable wages in every region of Flanders in spite of rapid and sustained demographic recovery. Mortality shocks affecting multiple localities became few and far between compared to the previous century. A cumulative effect is thus questionable and, consequently, real wages should have been falling continuously. Yet, they didn't.

The neo-Malthusian model does nevertheless hold some merit. In two periods, the logic of population seems applicable. Between the beginning of the fourteenth century and the Black Death, welfare ratios in the whole of Flanders declined quickly in accordance to mounting demographic pressure and widespread warfare. The standard of living only increased briefly in the 1320's, right after the shock of the Great Famine (see 1.3 With ups and downs). Similarly, wages started their race to the bottom in the sixteenth century, a time of strong population growth. However, the observation that the nature of the relationship between the two variables fundamentally changed in the intermediary century and half, indicates that population trends by themselves cannot be the primary mover of the standards of living, let alone the economy at large. This is not to say that demography did not matter. No serious historian would ever claim that the sudden and radical shift between the availability of land and labour did not impact the late medieval economy. Our point is rather that its effect was mediated though other factors in the County of Flanders.

Instead of focusing on the trends in one region, we may also test the explanatory power of the neo-Malthusian model by comparing the evolution of wages between regions with a different demographic response to the second plague pandemic. As we have seen in the general introduction, the Republic of Florence offers an excellent test case because the population decline was more outspoken in the fourteenth century and recovery more limited in the fifteenth century compared to the County of Flanders. Subsequently, the gains in real wages should have been higher and should have persisted for longer in the first mentioned region. Directly comparable welfare ratios for male building labourers in the Republic have

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[175] Stef Espeel, "Prices and crises. The grain economy in fourteenth-century Flanders" (PhD thesis, Antwerp University, 2021), 93-141.

been reconstructed by Paolo Malanima (see 1.1 In search of the impossible).[176] Unfortunately, they pertain only to the metropole of Florence. To date, no regional series are available, so we are forced to compare his data with our series for Bruges and Ghent.[177] We may also include his series for southern England to put the results of the two leading economies into perspective. We should note that this data does not relate to metropolitan areas but to secondary cities and towns, which is more like our series for Inland and Coastal Flanders. Malanima preferred the welfare ratios from those communities over London because he believes that the level for the latter is overestimated. Nominal wages in the English capital were 40 to 45% higher than in the surrounding towns. This isn't abnormal as we may observe similar differences in the County of Flanders (see 1.5 A touch of Smith). The problem however is that the prices for foodstuffs Malanima had to rely on were calculated from sources pertaining to southern England and not to London in specific. Since prices are generally lower outside the capital, welfare ratios are inflated. The inclusion of the southern English series is therefore necessary but not ideal when comparing with metropoles. Despite the structural differences in absolute levels between metropoles and secondary cities, the relative evolution of wages may still be representative for the region.

Figure 1.4 plots the welfare ratios for skilled and unskilled male building labourers in the three regions. At a glance, it seems that remuneration was the highest in the County of Flanders during the entire period under study. Annual data reveals that skilled wages in Ghent and Bruges were in 76.7% of the cases higher than in Florence, with no difference before and after the Black Death (76.3% of all years for the period 1300-1348 and 76.7% for 1349-1550). On average, craftsmen in the Flemish metropoles earned a third (38.6%) more than their Florentine colleagues during the late medieval period. Regarding unskilled wages, the figures are similar but less outspoken. Welfare ratios in Ghent and Bruges surpassed those in Florence in 120 out of 174 years (or 69.0%). The average wage in the former metropoles was one fourth (24.5%) higher than in the latter. However, a declining gap is visible in the second half of the fourteenth century. Between 1349 and 1384, the ratio is temporarily reversed and construction workers could purchase 12.4% fewer baskets in Flanders. In the fifteenth century, the earlier differences re-emerge: skilled labourers in Ghent and Bruges earned 26.8% more than their Florentine colleagues between 1400 and 1550.

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[176] Malanima, "When did England overtake Italy?."
[177] In her PhD thesis, Paola Pinelli has collected data for Prato. However, her work is still under embargo and we were unfortunately not allowed to consult the materials. Paola Pinelli, "Prezzi e salari a Prato nel XIV secolo: Contributo alla determinazione delle condizioni di vita nel secolo della Peste Nera" (PhD Thesis, Università di Pisa, 1999).

FIGURE 1.4 WELFARE RATIOS IN NORTHWESTERN AND SOUTHERN EUROPE

A) Skilled wages
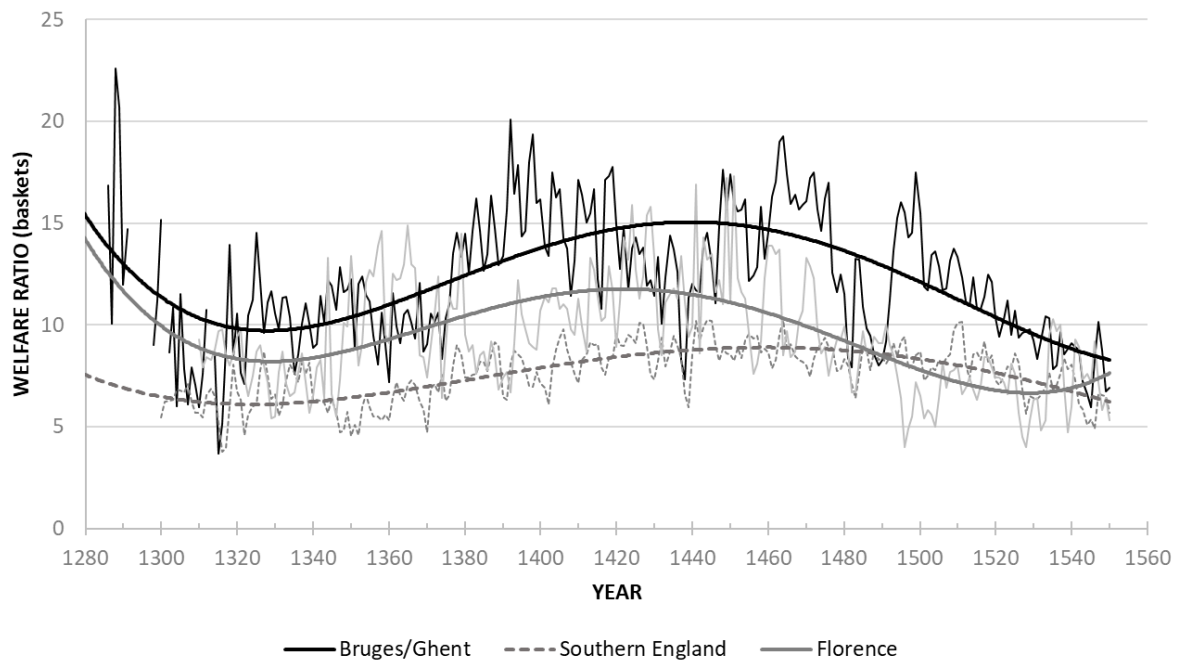
B) Unskilled wages
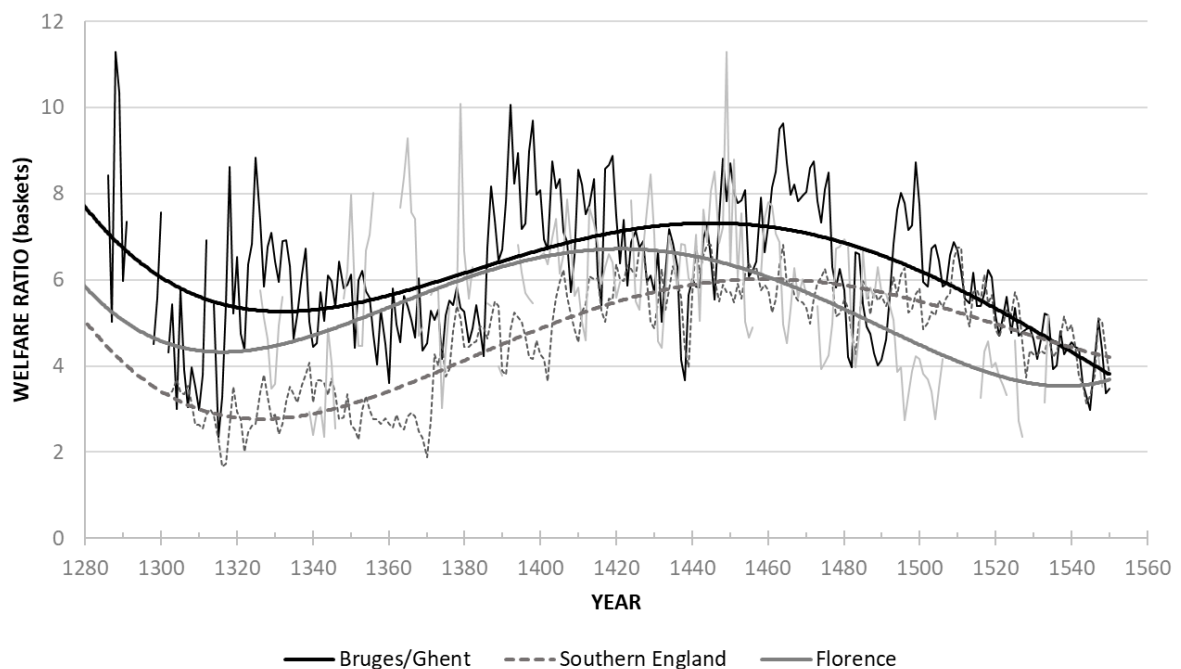
Sources: For Flanders, see Appendix 1.6; for England and Florence, see Malanima, "When did England
overtake Italy?"

Notes: Trendlines are fourth degree polynomials.

Again, the Neo-Malthusian model falls short to explain the observed trends. Initially, the Florentine data corresponds quite well with the demographic evolution. Welfare ratios surge spectacular in the middle of the fourteenth century. Unskilled wages might be the most informative because the availability of such labourers and their value depends foremost on the stock of people, whereas the availability of craftsmen also depends on their training. In this light, the higher mortality figures in the Republic of Florence might explain why the gap in welfare ratios between its capital and the Flemish metropoles suddenly declines in the wake of the Black Death. However, from the last quarter of the fourteenth century on, a correlation between population and wages is remarkably absent. Florentine remuneration stagnated and then started its long decline from the middle of the fifteenth century. The welfare ratios for labourers already dropped below their pre-Black Death levels by 1500 even though the Republic only counted half the number of inhabitants it had housed before the outbreak. In contrast, remuneration in Bruges and Ghent resisted a clear, long-term downward trend for far longer. Wages around 1500 still rivalled the high levels observed for the early fifteenth century (they might even have been the highest, judging from the evidence in Chapter Two). Yet, population figures were recovering at a faster rate than in Florence. By 1469, the number of inhabitants was only a tenth lower compared to the early fourteenth century (see general introduction). Reversely, demographic recovery in England was rather slow. Like in the Republic of Florence, the size of the population around 1500 stood at half the level it had been two centuries before.[178] On the other hand, the evolution of welfare ratios was more similar to that of Bruges and Ghent. Wages started to drop from the late 1520's and only fell below their pre-Black Death level by the seventeenth century. By all accounts, if demography was the prime mover of remuneration, we should not observe three contradicting relationships between these two variables.

The comparison in Figure 1.4 does not only question the importance of population movements in relation to the Golden Age for labour but it is also informative for another important and related debate in economic history, namely the origins of the wage and, by extension, economic gap between Northwestern Europe and its central and southern parts, a process known as the Little Divergence. Although they have worked with similar datasets of wages of building labourers in capitals, often based on the seminal work of Robert Allen, scholars have come to different conclusions. One group of historians believes that the divergence emerged relatively recent, pointing at the seventeenth or eighteenth century.[179]

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[178] Gregory Clark, "The long march of history: Farm wages, population, and economic growth, England 1209–1869," *The Economic History Review* 60, no. 1 (2007): table 9.

[179] Allen, "The Great Divergence."; Daron Acemoglu, Simon Johnson, and James Robinson, "The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth," *American Economic Review* 95, no. 3 (2005); Malanima,

Another group proposes the period immediately after the Black Death as a crucial period of transition, putting much weight on the way the demographic shock reshaped existing institutions in Northwestern Europe, like labour markets, marriage, or guilds. This new economic context resulted in higher productivity levels and wages compared to other parts of the continent.[180] The discrepancies in chronology largely depend on the chosen units of analysis. Those favouring a later timing tend to focus on England and Italy, while those looking at the Late Middle Ages often include other regions. Most notably, the higher remunerations for Northwestern Europe in the fifteenth century are mainly driven by the Low Countries, more precisely by Antwerp and Amsterdam, but both series only begin after the Black Death. Earlier observations pertain entirely to England, which was still a more peripheral region.[181] The real economic powerhouse of medieval Northwestern Europe, the County of Flanders, is very much missing. That is, until now.

Our new series for building labourers showcase that the prevailing welfare ratios in the heart of Northwestern Europe were much higher before the Black Death than we have assumed on the basis of the English evidence. The data for Bruges and Ghent suggests that the levels could rival and even surpass those found on the most advanced markets in Southern Europe. Welfare ratios for the secondary cities and towns in Inland Flanders didn't trail too far behind either, despite the difference in community type. Unskilled and skilled wages were roughly similar to those in Florence between 1310 and 1348 (respectively +9.3% and -11.3%). However, this does not mean that we should push the timing of the Little Divergence further back into time. The Flemish experience was exceptional for the Southern Low Countries at large, whereas multiple thriving city-states could be found across the whole Italian peninsula. As we will see in the next section, wages in the capitals of the neighbouring principalities were far lower and only caught up with the general level of the County in the decades after the Black Death. In this sense, we agree with the group of historians that place the origins of a European divergence in the fifteenth century, but we do not contend with their explanation of institutional change inspired by mass mortality. This process started long before as we will show in the following two sections.

"When did England overtake Italy?."; Mikołaj Malinowski, "Little Divergence revisited: Polish weighted real wages in a European perspective, 1500–1800," ibid.20, no. 3 (2016); Mauro Rota and Jacob Weisdorf, "Italy and the little divergence in wages and prices: evidence from stable employment in rural areas," *The Economic History Review* 74, no. 2 (2021).

[180] Pamuk, "The Black Death and the origins."; van Zanden, "The skill premium and the 'Great Divergence'."; De Moor and Van Zanden, "Girl power."; Mattia Fochesato, "Origins of Europe's north-south divide: Population changes, real wages and the 'little divergence' in early modern Europe," *Explorations in Economic History* 70 (2018).

[181] See for example the estimates of GDP per capita for different regions between 1300 and 1349. Jutta Bolt and Jan Luiten van Zanden, "Maddison Project Database," ed. Rijksuniversiteit Groningen (Groningen2020).

1.5 A touch of Smith. The role of commercialisation

The popularity of neo-Smithian models in the historiography of the Low Countries is not surprising given the exceptionally high levels of medieval urbanisation in this area. In this perspective, cities play a crucial role as centres and enablers of labour specialisation and concentration. Whereas pre-existing agricultural conditions, such as farming techniques or crop types, and environmental conditions, such as hills or waterways, influence the location and extent of urbanisation, urban growth leads in turn to a spatial reconfiguration of the hinterland. According to Johann von Thünen, the intensity of agriculture and the type of goods produced will vary in accordance with its distance to the urban markets, thereby creating multiple zones of production. Wares that quickly perish or have a high transportation cost need to be grown or manufactured near the city to remain profitable. In contrast, extensive forms of agriculture, like husbandry, are only feasible further away because land prices increase with population density.[182] The von Thünen model has direct relevance to our question of living standards because it implies that the demand for labour in general and the demand for skilled labour in specific was higher the closer one is to a city. Consequently, we expect remuneration in a certain location to be correlated with its distance from the nearest urban market. Our regression analysis of the nominal wages of Flemish building labourers suggests that this was indeed the case. The urban wage premium seems to have significantly affected remuneration up to eight kilometres away, or roughly three hours of commuting per day, where workers still received ten per cent of the premium (see Appendix 1.2). Within the dense urban network of the County of Flanders this effect must have been extensive.

Obviously, cities and their hinterland do not exist in a vacuum. In practice, the idealised model of von Thünen is influenced by a plethora of factors. For example, certain soil types may hinder the intensification of agriculture or the presence of minerals may result in mining activities closer to the city than one would expect. Most importantly, urban markets are embedded in larger networks. They trade with other communities, both in and outside the County of Flanders. Moreover, these communities are not equal. Just as the von Thünen model predicts centralisation at a local level, so does central-place theory posit a certain hierarchy between markets at a regional and interregional level. Because certain goods and services are only profitable and desirable within a certain radius from where they originate, like staple food or unskilled labour, multiple cities will have the same function. Other goods and services demand more specific needs, such as extensive infrastructure or the

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[182] Johann Heinrich Von Thünen, *Der isolierte Staat im Beziehung auf Landwirtschaft und Nationalökonomie*, 3 ed. (Jena: Fischer, 1842).

concentration of capital, which causes diversification and specialisation of urban functions. The result is a pyramid structure: at the bottom, many small towns provide a forum to acquire basic necessities, and at the top, one metropole also offers exclusive, luxury products and highly specialised labour.[183] In line with neo-Smithian theory, we expect nominal wages to fetch a premium in the latter. And as we have seen, remuneration was indeed substantially higher in the two largest cities. Living standards were on average 47.2% higher for skilled labourers and 37.0% higher for unskilled labourers compared to their colleagues in the smaller towns of Coastal and Inland Flanders.

What is remarkable for the medieval County of Flanders and the Southern Low Countries in general, is that the urban supremacy of Bruges and Ghent did not completely overshadow the whole urban network like Paris or London did, nor did regional centres likewise dominate the many small towns in their vicinity. The hierarchy between different sizes of towns seems to have been less outspoken than we might expect from central place theory. The wage premium paid in Bruges and Ghent only affected remuneration up to ten kilometres away (see Appendix 1.2). Nominal wages within one region did not vary structurally between different sizes of towns. For example, the variable for a location's distance to the nearest regional centre proved insignificant in our regression.[184] However, this result was mainly driven by data concerning the years after 1470. Before, large secondary cities did pay a premium for labour, but its impact gradually diminished from the last quarter of the fourteenth century on, at the same time we witnessed the huge upspring in living standards towards unprecedented levels (see 1.3 With ups and downs).[185] The way the urban network worked in the County of Flanders had fundamentally changed during the Late Middle Ages. Central place theory therefore seems more applicable to the fourteenth than to the fifteenth century.

To explain the diminishing wage differentials between different sized cities, we need to look at the increased commercialisation across the whole urban spectrum. According to Peter Stabel, small and secondary cities in the County of Flanders were able to develop highly specialised functions from the late fourteenth on. In spite of the enormous gap in capital and demographic concentration between these localities and the industrial giants of Bruges and

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[183] Walter Christaller, *Die zentralen Orte in Suddeutschland* (Jena: Gustav Fischer, 1933).

[184] Regional centres are defined as those cities with a population above 10,000 inhabitants. The significance of the variable was 0.131 in the inflation model and was therefore not withheld (see appendix 1.2).

[185] Based on selecting cases according to the region model (see appendix 1.2), the (un)standardised beta coefficient was relatively stable between 1350 and 1380 (B=-0.014 to -0.013) but dropped significantly in the next decade (B=-0.009). From then on, the impact steadily declined at a pace of 0.001 per decade, eventually becoming insignificant from 1470 on (p=0.079).

Ghent, on which they often relied for raw materials and for the export of their finished products, many small and secondary towns managed to seize economic opportunities beyond the mere provisioning of their hinterland, with some eventually achieving important regional and even international roles. When the textile industry in Bruges and Ghent reoriented itself in the light of changing international markets towards the production of luxury woollens, so too did the smaller cities convert their production towards more qualitative textiles albeit somewhat later and aimed at the medium segment. The transition was most extensive and successful in Inland Flanders, especially in localities situated near the river Lys. For example, woollens from Wervik and Menen, towns with less than 2,000 inhabitants, were sold across the whole European continent.[186] Other cities also found opportunities outside the traditional cloth industry, not rarely with great success. Aalst, housing around 4,000 souls, profited from its central position on the waterways by acting as a transit hub for grain.[187] The easy access to grain stimulated in turn the growth of the brewing industry, which became one of the largest in fifteenth-century Flanders.[188] This high degree of specialisation and diversification of functions of multiple small towns was only possible in a dense network of well-integrated urban markets. The high living standards in the fifteenth century must therefore not be interpreted as a feature of a few privileged locations, as it did in the fourteenth century, but rather as a prevailing condition in the whole County with only one clear outlier between Bruges and Ghent.

After the Crisis of the Late Middle Ages, the Flemish economy had thus found its second breath and provided better rewarded labour opportunities for a larger share of the population than before. The economy based on mass produced cheap textiles concentrated in a few big cities gave way to one focused on a broad range of goods with high added value manufactured across a wide spectrum of localities. In the former system, the opportunities for wage earners were fairly limited. The textile industry was firmly in the hands of a few wealthy merchants who controlled the provisioning of the raw materials as well as the export to international markets. Middle classes benefited from provisioning or servicing those elites but remained few due to their limited clientele. The high living standards of skilled labourers across the County only applied to a small group. The unskilled workers in Inland Flanders and the two metropoles initially shared in the wealth of the merchants and certainly received their cut based on the late thirteenth living standards, but when the economy started to stutter, both

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[186] Peter Stabel, ""Dmeeste, oirboirlixste ende proffitelixste let ende neringhe" een kwantitatieve benadering van de lakenproductie in het laatmiddeleeuwse en vroegmoderne Vlaanderen," *Handelingen der Maatschappij voor Geschiedenis en Oudheidkunde te Gent* 51 (1997): 133-36.

[187] All population figures relate to 1469. Prevenier, "La démographie des villes."

[188] Stabel, *De kleine stad in Vlaanderen*, 226-41.

in international demand and in the supply of raw materials, the only way to keep profits up was to minimalise labour costs. In a context of high supply but diminishing demand, workers had but little power to negotiate remunerations.

Peter Stabel argued that this started to change with the reconversion of the urban economies, first and foremost in Bruges. The evolution of living standards and the just described changes in the commercialisation of small towns suggests that the renewed economic focus really took off in the whole of Flanders from the late fourteenth century on. The focus on high added value goods required more skilled labourers, which resulted in a larger middle class who started to create its own demand for manufactured goods. It also provided more diverse labour opportunities for unskilled workers, who were not as dependent on a single market as before. Coupled together with a severely depleted workforce due to plague mortality, labourers in general held a strong position vis-à-vis employers to keep their wages high, even in the face of deflation. Perhaps more important than once again achieving and somewhat surpassing the late thirteenth-century welfare ratios, the most important aspect of the Golden Age in Flanders was that it brought better living standards to a broader share of the population.

Central place theory does not stop at political or administrative boundaries. The County of Flanders maintained strong economic ties across the whole Southern Low Countries, which only intensified after the unification under their Burgundian rulers. One can thus wonder if the living standards in the County was truly representative for the region as a whole. Did the Flemish fortune come at the expense of the neighbouring economies or were they integrated in this high-wage economy with its patchwork of specialised cities? To answer this question, we have reconstructed welfare ratios for the leading centres in the Duchy of Brabant and the County of Hainaut (see Appendices 1.4 and 1.5). The robustness of the data for the city of Antwerp is on par with, if not better than, that of our Flemish baskets but only begin in 1400. For the city of Mons, we were able to trace the daily welfare ratios of male building labourers back to 1326 though this required more modelling than in other cases. The data is subsequently more indicative than for the other regions. Nevertheless, Figure 1.5 shows remarkable similarities between all series.

FIGURE 1.5 WELFARE RATIOS IN FLANDERS, MONS, AND ANTWERP (1300-1550)

A) Skilled labourers
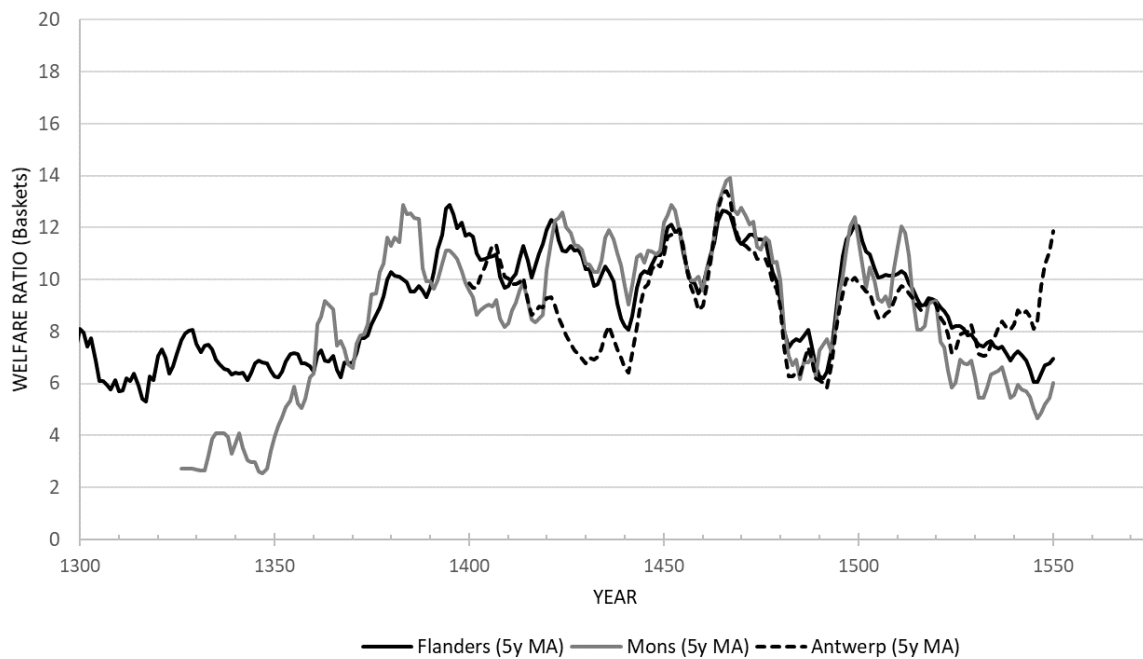
B) Unskilled labourers
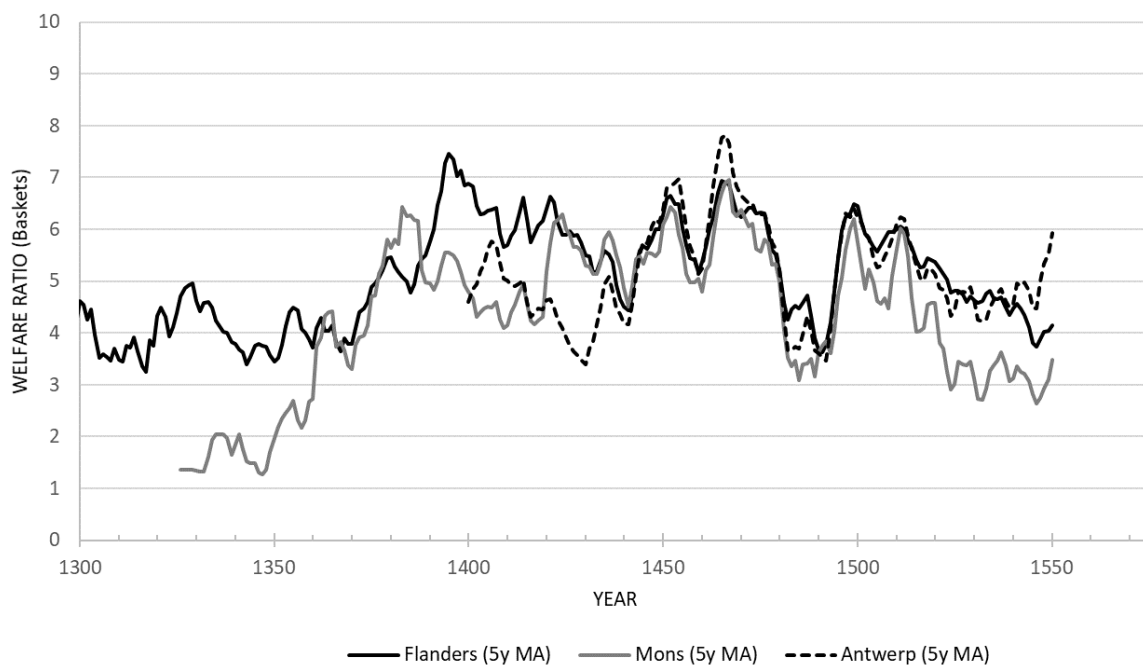
It is clear that the levels of living standards in Antwerp and Mons were in the long term on par with the prevailing levels in the County of Flanders from the 1360's on, although there are some regional discrepancies in the medium term between 1390 and 1440. The fourteenth-century data for Mons shows an interesting parallel with the trends in Coastal Flanders (see Figure 1.3). Again, the benefits of the older economy focused on cheap textiles seemed to have been geographically concentrated, this time on an interregional level. Before the Black Death, both skilled and unskilled labourers in Mons earned only half as much as their colleagues in Flanders. This rapidly changed in the following decades when living standards in the entire Southern Low Countries started to converge. It is possible that, after the mortality crises of plague, labourers from the periphery immigrated towards the most commercialised region, pursuing higher wages but thereby creating an even greater shortage in their place of origination. At least on a local level, there is some evidence that people moved towards localities with increased labour opportunities and remuneration, migrating from countryside to towns.[189] If such a pattern also existed on the interregional level, it would explain why real wages did not increase in Inland Flanders or Bruges and Ghent, but did so spectacularly everywhere else until an equilibrium was reached.

In contrast to the earlier period, our different series started to diverge in the sixteenth century, when the urban network underwent structural changes once more, especially in the flow of trade. Changes in the international trade, now focused on the intercontinental routes, gradually made the Antwerp market and the Brabantine fairs in general more interesting for foreign merchants. Small towns and secondary cities conversely shifted a large part of their trade from Bruges towards the new gateway. Bruges remained an important player in the Southern Low Countries but lost its primacy to the new rising star.[190] In the 1540's, living standards in Antwerp surpassed those of Bruges. At the opposing end of the spectrum, the real wages in Mons started to decline more rapidly than elsewhere, falling some 20 to 25 per cent behind those of the County of Flanders, depending on the skill level. Where the economy in northern Hainaut had developed a strong linen industry in the fifteenth century, especially around Ath, it now faced fierce competition from cities in Inland Flanders where a similar industry started to boom exponentially and which were better situated at the new

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[189] Roosen and Curtis, "The light touch," 51; Thijs Lambrecht, "Si grant inégalité? Town, Countryside, and taxation in Flanders, c. 1350-c.1500," in *Inequality and the city in the Low Countries (1200-2020)*, ed. Bruno Blondé, et al., Studies in European Urban History (Turnhout: Brepols, 2020), 162-64.
[190] Van der Wee, *The Growth of the Antwerp Market*; Jeroen Puttevils, *Merchants and trading in the sixteenth century: the golden age of antwerp* (Oxon: Routledge, 2016).

trading routes towards Brabant.[191] The second pillar of the Hainaut economy, the all-important grain trade from northern France, also faced a new competitor. Baltic grain became increasingly important, especially in the face of the political turmoil with France at the end of the fifteenth century.[192] The County of Hainaut thus lost some of its economic allure. It became a more peripheral region with the trade flows moving towards the north, which is reflected in the falling living standards of Mons. Considering its rapid ascent and subsequent decline of real wages, Hainaut probably fits the classic idea of a Golden Age for labour after the Black Death best out of all regions in the Southern Low Countries.

1.6 Confronting Marx. The role of social property relations

When studying the highly urbanised medieval Southern Low Countries, it is easy to forget that most of the population was still active in agriculture. However, the countryside was the *conditio sine qua non* for the emergence of the dense urban network: it provided the necessary, mainly unskilled, labour force and a large part of the raw materials as well as food. It is therefore quintessential to also explore the economic circumstances outside the cities. The concept of social-agrosystems is most suited for this task since it already places great importance on labour opportunities. According to Erik Thoen, the income of farmers is determined by their access to land and other natural resources, capital, their own labour (surplus extraction, free vs. unfree), and markets.[193] Based on these characteristics we can distinguish three systems in the County of Flanders:

In Coastal Flanders, inhabitants gradually lost access to land from the late thirteenth century. Instead, a competitive lease market for large sized farms focusing on cattle breeding, which doesn't require lots of labour input, and grain cultivation, which only needed high seasonal labour, emerged. As a result, many poorer households were pushed out of the region, which

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[191] Stabel, *De kleine stad in Vlaanderen*, 176-89; Etienne Sabbe, *De Belgische vlasnijverheid. De Zuidnederlandse vlasnijverheid tot het verdrag van Utrecht (1713).* , 2 vols., vol. 1 (Kortrijk: Nationaal Vlasmuseum, 1975).

[192] Raymond Van Uytven, "L'approvisionnement des villes des anciens Pays-Bas au Moyen Âge," in *Production and Consumption in the Low Countries, 13th-16th Centuries* (Hampshire: Ashgate, 2001); Richard W. Unger, "Feeding Low Countries Towns : the Grain Trade in the Fifteenth Century," *Revue Belge de Philologie Et D'Histoire* 77, no. 2 (1999): 332-35; Marie-Jeanne tits-Dieuaide, "The Baltic grain trade and cereal prices in Flanders at the end of the Middle Ages: some remarks," in *The Baltic Grain Trade: Five Essays*, ed. Walter Minchinton (Exeter: University of Exeter, 1985). While the last has received some criticism on the extent of the Baltic grain trade in the fifteenth century, it still provides an important entry to the topic.

[193] Erik Thoen, "Social agrosystems as an economic concept to explain regional differences. An essay taking the former county of Flanders as an example (Middle Ages-19th. century)," in *Landholding and land transfer in the North Sea Area (Late Middel Ages-19th century)*, ed. B. Van Bavel and Peter Hoppenbrouwers, Comparative Rural History of the North Sea Area (Turnhout: Brepols, 2004).

reduced the reservoir of wage earners living permanently in the area. The impact of the Late Medieval Crisis was further enhanced by frequent storm surges, which put increasing pressure on the already struggling peasants in the form of destruction and taxation.[194] Before the Black Death, when the evolution was still in full swing, the many poorer households must have been eager to pick up opportunities to complement their income. Demand for labour was however irregular and remuneration was consequently low.[195] With the plague waves in the second half of the fourteenth century, population levels decreased even more rapidly, either through excess mortality or increased emigration in pursuit of better working conditions (cfr. supra). The strong local elites and the absentee owners seized the opportunity to further enlarge their holdings but were soon faced with the problem of finding enough labourers during harvest times. The demise of smallholders in this region ultimately lead to a shortage in the workforce, which forced the leaseholders of the medium and large farms to pay higher wages in order to attract seasonal labourers from further away.[196] In this sense, the atypical increase in welfare ratios after the Black Death was not merely the adaptation of labour markets to the new land-labour ratios, as was the case with Hainaut and probably Brabant. In Coastal Flanders, it was not enough to simply match the prevailing higher levels in Inland Flanders to stop further depopulation. Farmers had to pay a sizeable premium to persuade workers to travel each harvest season to the region. Figure 1.6 shows that employers near the coast were willing to pay up to half as much as in Inland Flanders to attract workers. It also suggests that the Black Death was not a structural break but rather an accelerator of an ongoing process. Remuneration was already increasing since 1300.

In stark contrast to Coastal Flanders, the majority of the population in Inland Flanders managed to keep its access to a small plot of land because political and economic power was scattered amongst many competing elites. Labour opportunities in the countryside were limited since only few large farms existed, but many peasants engaged in proto-industrial activities and grew cash crops for the urban textile markets. Generally, most smallholders in the thirteenth and fourteenth century succeeded in generating enough income to survive on their plot without the need for wages. Medieval cities, on the other hand, needed a constant influx of labourers because the number of deaths usually outweighed the number of births, a negative population growth known as the urban graveyard effect. To persuade people to leave their self-sustaining smallholdings behind, towns in Inland Flanders had to pay relatively high wages. Figure 1.6 demonstrates that before the Black Death living standards of

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[194] Soens, *De spade in de dijk?*

[195] "Waterbeheer in een veranderende samenleving," 568-75.

[196] Thoen and Soens, "The family or the farm: a Sophie's choice? The late medieval crisis in Flanders," 197-203.

FIGURE 1.6 UNSKILLED WAGE DIFFERENCES BETWEEN SOCIAL-AGROSYSTEM OF FLANDERS
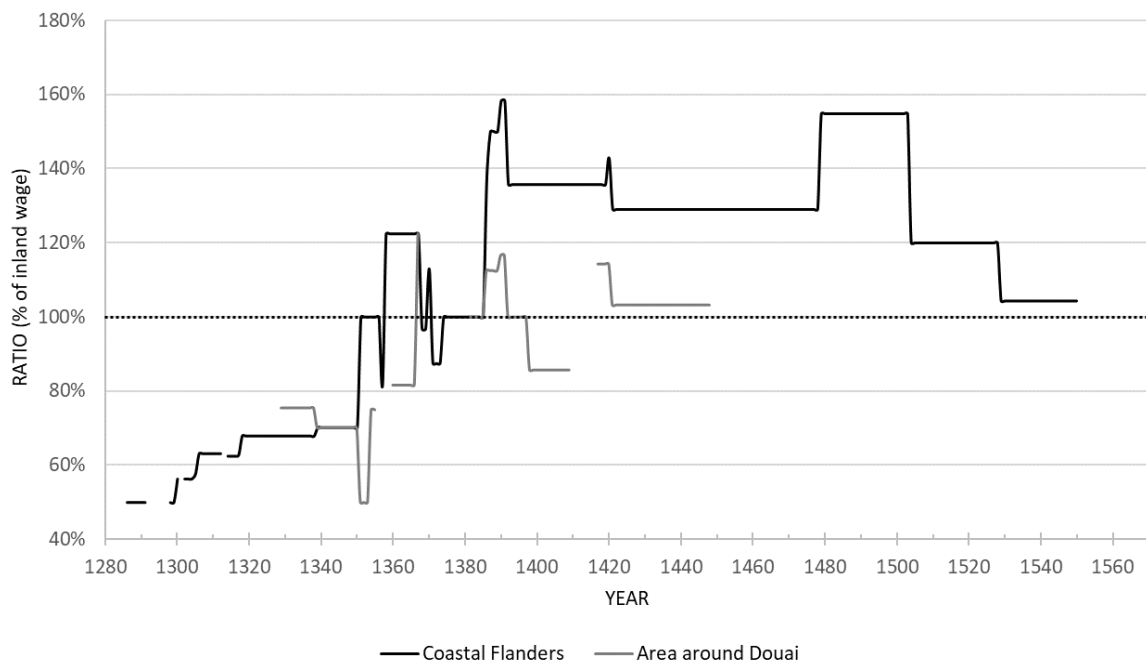
Sources: Appendix 1.6

unskilled wage earners were more than a third higher compared to other social agrosystems. This all changed radically in the second half of the fourteenth century. As we have seen multiple times now, the shift in the land-labour ratio after 1349 caused living standard to converge across the Southern Low Countries. Yet, decades after the convergence, real wages in Inland Flanders were still losing ground to those in the other regions. The reason has to be sought in the specialisation of the small towns we described earlier. To be able to compete with larger centres and maximise their profits, towns increasingly handed out parts of the production process towards the countryside. For smallholders, this type of labour was easily integrated in their income strategy, which had already included some proto-industrial activities and did not require permanent migration. Because it was never the main source of income, wages could be set at a comparatively lower level.[197] In the short term, the new opportunities must have brought some new wealth to the smallholders of Inland Flanders, but, in the long term, this enabled the further fragmentation of holdings in ever smaller plots, which in turn increased the dependency of those peasants on proto-industrial activities. In the late fifteenth century, the booming linen industry resulted in an even more pervasive putting out system in the countryside. Together with a strong population increase and

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[197] Thoen, "Landbouwekonomie en bevolking," 980-1019.

continuous inflation, this pushed real wages to ever lower levels in the sixteenth century. Faced with declining incomes, the seasonal migration towards Coastal Flanders became a structural feature of the peasant economy in Inland Flanders.[198] With the increased supply of labour, large farmers in the former region may have seen their chance to gradually decrease the premium and by 1530 the difference between the agrosystems seem to have disappeared.

In the most southern parts of the County, around the city of Douai, a transitionary zone to a third social agrosystem can be found. Here, a bipolar economy was characterised by a few mega farms firmly in the hands of the elites. They were being worked on by a multitude of wage earners living on micro holdings.[199] Unfortunately, the data for this region is more limited and fragmentary compared to the others, which makes it more difficult to discern and interpret evolutions. Aside from being another example of the converging trend between 1349 and 1400, Figure 1.6 suggests that remuneration was comparatively low near Douai in the first half of the fourteenth and fifteenth century. Without the (extensive) possibilities of proto-industrial activities found in Inland Flanders and given the limits of their tiny plots, peasants were highly dependent on their wage income. The strong position of the elites, holding a near monopoly on employment, probably allowed them to set the bar low.

1.7 Conclusions

Having explored the relevance of the most common explanatory frameworks for the late medieval economy, it has become abundantly clear that one determinant is unlikely to explain the entire complex puzzle of living standards in the County of Flanders, especially in the light of its diverging regional trends. A single determinant is per definition static, it imposes a universal law upon an ever-shifting reality until its logic is no longer tenable. It is why scholars are forced to distinguish Malthusian economies from post-Malthusian and modern growth societies for example. Singling out one variable certainly helps to determine its importance, but, in the end, it is the specific set of variables and their interaction on different geographical levels, from local to interregional, that will ultimately shape living standards. Population flows did matter a great deal as is evident from the great convergence of wages in the Southern Low Countries after the Black Death. However, these evolutions had varying results because their impact was channelled through a prism of pre-existing

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[198] Thijs Lambrecht, "Agrarian change, labour organization and and welfare entitlements in the North-Sea area, c. 1650-1800," in *Migration, Settlement and Belonging in Europe, 1500–1930s: Comparative Perspectives*, ed. Steven King and Anne Winter (New York: Breghahn Books, 2013).

[199] Jean-Pierre Jessenne and Dominique Rosselle, "L'histoire rurale de la France du Nord de la fin du Moyen Âge au xxe siècle," *Revue du Nord* 375-76, no. 2 (2008): 312-16.

structures. In this chapter, we have focused on the importance of commercialisation and power relations. The pattern of multinuclear urbanisation in the Southern Low Countries and its interaction with the surrounding social-agrosystems on which it relied for labour, materials and food, seemed to have played a leading role in determining wage levels. In this regard, the fourteenth century was an age of profound transformation. The old economy in which the big industrial giants dominated, gave way to a more diversified urban network in which secondary and small towns could likewise achieve high levels of commercialisation, first prudent in the early fourteenth century but clearly accelerating in the last quarter of the fourteenth century. Middle classes swell in numbers and started to create their own economic dynamism, boosting demand for regional consumer goods. Exchange relations with the countryside changed as proto-industrial activities became well integrated into the farmers' income strategy in Inland Flanders. Near the coast, a specialised agriculture focused on large scale farming and animal husbandry emerged, stimulating seasonal migration during harvest times.

When the deadly plague hit the Southern Low Counties, it did not find a blank slate but a complex society already undergoing a full-scale metamorphosis. This is why welfare ratios climbed to unprecedented levels in some regions, such as Hainaut and Coastal Flanders, but declined in Inland Flanders and the metropoles of Bruges and Ghent until the last quarter of the fourteenth century. Even afterwards, unskilled building labourers in Inland Flanders would never achieve the same high levels as they did in the late thirteenth century. How golden the Golden Age truly was in the Southern Low Countries is therefore not a straightforward question and the answer varies greatly per region. On a general level, the Black Death only ushered in an era of increased prosperity after three decades and the extent of this increase was far more modest compared to the rest of Europe, especially when compared to the thirteenth century. Perhaps the potential for growth was limited given the already high standards of living before. After all, welfare ratios in Flanders belonged to the absolute top of European markets during the entire late medieval period. Aside from the absolute levels of wages, the increased share of the population that gained access to such wages is equally important. Whereas the economy of the early fourteenth century mainly benefitted workers in the metropoles, the more diversified landscape of the fifteenth century brought prosperity to most regions in the County of Flanders and the Southern Low Countries in general. This is of course all under the precondition that men's wages are representative for the income of households, that labourers always worked full-time, and that the building industry is a good proxy for society at large. Such assumptions are highly questionable and will be addressed in the next chapters.

TIME IS MONEY

Supply and demand for building labourers in Bruges and its hinterland

Time and again scholars have warned us about the dangers of using daily wage rates as a proxy for annual income.[200] Labourers in the past and present do not work every day of the year. Employment rates and total remuneration can vary greatly due to illness, the number of holidays, climatic conditions, demand for labour, etc. Unfortunately, the historic record is mostly mute on this type of information and historians have been forced to rely on crude estimates. Already in the nineteenth century, Thorold Rogers, one of the founding fathers of modern British economic history and pioneer in collecting data on premodern prices and wages, proposed (without any clear justification) a work year of 300 days but immediately remarked that 'it does not of course follow that such persons were always at work for 300 days in the year.'[201] Virtually all publications on wages have since come with a similar mandatory fine print. However, historians have not been able to resist the temptation of such a powerful variable for a period for which we have so little quantitative data. As we have seen in the previous chapter, daily wage rates constitute the primary evidence for some of the most important debates in economic history. The ideas of the Golden Age for labour and a divergence of wages within Europe rest on the assumption that employment remained unchanged across time and space, or at least that they did not change enough to offset the trends in remuneration. Such an assumption is anything but self-evident.

In contrast to the static image of most wage series, economic theory posits that the supply of labour is highly responsive to changes in remuneration. In contemporary markets, higher wages often lead to an increase in working time as it becomes more attractive than leisure (i.e. the substitution effect), however, after a certain level of income is reached, depending on personal preferences, higher wages may in fact reduce supply because leisure becomes more affordable (i.e. the income effect). Naturally, medieval labour markets functioned differently

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[200] Most notably, the representativeness of daily wages is extensively questioned in Bruno Blondé and Jord Hanus, "Beyond building craftsmen. Economic growth and living standards in the sixteenth-century Low Countries: the case of 's-Hertogenbosch (1500–1560)," *European Review of Economic History* 14, no. 02 (2010); Hatcher, "Unreal Wages: Long-run living standards and the 'Golden Age' of the fifteenth century." For a recent overview, see Hatcher and Stephenson, *Seven Centuries of Unreal Wages*. Reservations were already voiced earlier by several scholars - like Henry Phelps Brown and Sheila Hopkins, Peter Ramsey, Donald Woodward, and Jean-Pierre Sosson - but were often neglected and never gathered such scholarly momentum.

[201] Thorold Rogers, *1259-1400*, 7 vols., vol. 1, A History of Agriculture and Prices in England from the year after the Oxford parliament (1259) to the commencement of the continental war (1793) (Oxford: Clarendon Press, 1866), 689.

from those of the present day and one should not project contemporary theories uncritically. Some workers, like serfs or domestic servants, could rarely choose their hours freely for example. Work and leisure did not hold the same cultural value.[202] Nevertheless, there are some indications of an income effect following the wage increase after the Black Death. In literary texts, the topos of the lazy farmer or labourer became increasingly popular.[203] Before, the clergy had already invoked similar images to lecture against the sin of sloth, but from the later fourteenth century on, secular authors started to use them in different contexts. Most famously, William Langland described in his poem Piers Plowman how several labourers refused to work the land. Instead, they indulged in excessive drinking or even faked injury until the personification of hunger drove them back to the fields. As soon as hardship had passed, however, the workers returned to their state of idleness.[204]

Traditionally, historians believe that medieval households only worked until they achieved a target income or level of consumption.[205] In other words, they had a clear leisure preference. Such behaviour is observed for the fifteenth-century miner-famers of England. According to Ian Blanchard, rather than striving for material wealth, the majority of peasants had a strong sense of their hierarchical position in the village society and adjusted the time spent mining for extra income as to match proper consumption patterns.[206] Only from the middle of the seventeenth century on, a new work mentality gained ground. In some parts of Northwestern Europe, households reallocated their labour from self-provisioning towards the market and increased labour intensity to maximise productivity and income. This so-called Industrious Revolution went hand in glove with a consumer revolution.[207] Despite falling daily wages, households managed to generate higher incomes in their pursuit to acquire new consumer goods, like tea and coffee.[208] In more recent years, some scholars have advocated to push the origins of both revolutions back to the late middle ages. A multitude of studies have outlined

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[202] Peter Burke, "The Invention of Leisure in Early Modern Europe," *Past & Present*, no. 146 (1995).

[203] Paul Freedman, *Images of the Medieval Peasant* (Stanford: Stanford University Press, 1999).

[204] John Hatcher, "England in the Aftermath of the Black Death," *Past & Present*, no. 144 (1994): 13-19; Dyer, "Piers Plowman and Plowmen: A Historical Perspective."

[205] Dyer, *Standards of Living in the Later Middle Ages: Social Change in England C.1200-1520*, 224.

[206] Blanchard, "Labour Productivity," 7-9.

[207] Jan de Vries, *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present* (Cambridge: Cambridge University Press, 2008). For a social criticism, see R. C. Allen and J. L. Weisdorf, "Was there an 'industrious revolution' before the industrial revolution? An empirical exercise for England, c. 1300-1830," *Economic History Review* 64, no. 3 (2011).

[208] Neil McKendrick, John Brewer, and J. H. Plumb, *The birth of a consumer society : the commercialization of eighteenth-century England* (London : Europa Publications, 1982); Frank Trentmann, *Empire of things: how we became a world of consumers, from the Fifteenth Century to the Twenty-First* (London: Allen Lane, 2016). For a historiographical overview of an early modern consumer revolution, see Wouter Ryckbosch, "Early Modern Consumption History: Current Challenges and Future Perspectives," *BMGN - Low Countries Historical Review* 130 (2015).

how the material culture in the Italian peninsula became more diverse, rich and abundant from the late fourteenth century on.[209] This Material Renaissance was accompanied by a fundamental change in how goods and their consumption were perceived, developing an 'attachment to things'.[210] Although less explored, similar developments have been observed for other regions, especially in the Low Countries and England.[211] According to Bruno Blondé et al., these consumer changes could not have emerged without equally profound changes in the attitudes towards work and leisure. In various cities, guilds and governments began to regulate and define work and, conversely, leisure time more clearly. A new bourgeois identity emerged that incorporated not only the traditional focus on work for the common good, but also promoted hard work and its profits as a means of social mobility. Income, wealth and consumption were not bound to one's predefined place in society, as the miner-farmers of Mendip thought, but in fact came to serve as a marker of one's status. Industriousness thus became a cornerstone of the urban elite and middle class already in the Late Middle Ages. In this sense, the image of the lazy farmer was not a reflection of a rural reality but served as an antithesis to stress bourgeois identity.[212]

Compelling as the hypothesis of Blondé et al. might be, they don't offer us much proof as to how the new attitudes affected employment in practice. After all, the wage increase and price scissor after the Black Death allowed labourers to achieve higher consumption levels without sacrificing leisure time. Historiography therefore presents us with two contradicting possibilities. The Golden Age may lose some of its shine if labourers acted according to the traditional view of leisure preference, or it may glitter more brightly if industriousness became the new ideal instead. To complicate matters further, employment is not only determined by the supply of labour, but also by the demand for labour. The question of working more or less only becomes relevant if market conditions allow such a choice. When

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[209] The idea was first elaborated by R.A. Goldthwaite, *Wealth and the Demand for Art in Italy, 1300-1600* (Baltimore: Johns Hopkins University Press, 1993). A collection of studies can be found in Michelle O'Malley and Evelyn Welch, eds., *The Material Renaissance* (Manchester: Manchester University Press, 2007). For a historiographical overview, see Blondé and Ryckbosch, "In 'splendid isolation'."

[210] Cohn, "Renaissance attachment to things: material culture in last wills and testaments."

[211] Dyer, *An Age of Transition?: Economy and Society in England in the Later Middle Ages*; M. Kowaleski, "A consumer economy," in *A Social History of England, 1200–1500*, ed. R. Horrox and W.M. Ormrod (Cambridge: Cambridge University Press, 2006); Martha C. Howell, *Commerce Before Capitalism in Europe, 1300-1600* (Cambridge: Cambridge University Press, 2010); Inneke Baatsen et al., "At Home in the City: The Dynamics of Material Culture," in *City and Society in the Low Countries, 1100–1600*, ed. Anne-Laure Van Bruaene, Bruno Blondé, and Marc Boone (Cambridge: Cambridge University Press, 2018).

[212] Bruno Blondé, Sam Geens, and Peter Stabel, "The World of Goods. An Essay about Leisure and a Medieval 'Industrious Revolution'," in *A cultural history of leisure in the medieval age*, ed. Paul Milliman (London: Bloomsbury Publishing, 2023).

demand is low, some labourers may be forced into (partial) unemployment. Although there are plenty of studies on the evolution of regional economies at large or certain sectors in specific, such as the building industry, the issue is rarely explored when wage rates are compared across time and space.[213] Yet the late medieval period is often seen as an era of profound economic change. Employers did not passively witness the dramatic shift in the functional distribution of income after the Black Death and came up with a variety of ways to cope with the increased labour cost. Trade networks and production centres adapted to the new realities with varying results.[214] In the extreme example of Spain, demand for building labourers completely crashed in the middle of the fourteenth century, leading to a reduction instead of an increase in daily wages.[215] In the countryside, the Spanish frontier economy had always experienced labour scarcity and landlords had been more accustomed to dealing with these restrictions. Maximum wages were established, though rarely effective, and labour contracts for multiple years were enforced. In some areas, large landowners converted their activities from crop cultivation to husbandry, which required less labour input. All these measures not only resulted in a limited wage increase compared to other parts of Europe, but also severely restricted labour opportunities for those without sufficient access to land.[216] One could of course argue on the basis of the modern economic theory of market equilibrium that the remuneration of labour is sensitive to such changes in the demand side and hence does not require any additional thought. As we have established above, however, medieval labour markets functioned quite differently from those of the present day. Employers were not necessarily price takers nor profit-maximisers. In the premodern Mediterranean region, for example, social norms and customs fixed women's wages at half the rate of men's wages irrespective of important fluctuations in demand.[217] Likewise, the tradition of wage stickiness we observed in Chapter One risks obscuring trends in annual earnings from labour. The social resistance against downward adjustments may lead us to overestimate living standards in times of low demand.

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[213] One important exception is Van der Wee, *The Growth of the Antwerp Market*. See section 1 for a more detailed discussion.

[214] See for our case studies for example: S. R. Epstein, "Cities, Regions and the Late Medieval Crisis: Sicily and Tuscany Compared," *Past & Present*, no. 130 (1991); Thoen and Soens, "The family or the farm: a Sophie's choice? The late medieval crisis in Flanders."

[215] Bruce M. S. Campbell, *The Great Transition: Climate, Disease and Society in the Late-Medieval World* (Cambridge: Cambridge University Press, 2016), 311-12.

[216] Carlos Nogal, Leandro Prados de la Escosura, and Carlos Santiago, "Economic effects of the Black Death: Spain in European perspective," *Investigaciones de Historia Económica* 16 (2020): 42-45.

[217] de Pleijt and van Zanden, "Two worlds of female labour: gender wage inequality in western Europe, 1300–1800."

To properly assess the extent of labour income during the Golden Age, the current chapter will explore changes in both the supply and demand side. First, we will highlight the current limitations and shortcomings of the historiography on the length of the late medieval work year. Currently, our knowledge is severely limited because it is largely based on extensive assumptions. The second section therefore aims to reconstruct a new series of employment rates based on direct data. It focuses on the case of full-time carpenters in the water board of Blankenberge, just to the north of Bruges. Thanks to some unique source materials, we will be able to estimate long-term evolutions of their working year and reconcile the contrasting historiographical perspectives on the medieval leisure preference. In addition, the new series allows us to convert our earlier daily wages (see Chapter One) into annual labour incomes. The result is a fundamentally different yet still positive picture of the Golden Age for labour. Since employment in the building industry usually depended on short-term contracts, the representativeness of the carpenters in permanent service of the water board may be questioned. The third and final section subsequently turns to the demand for construction workers in the area around Bruges. Expenses of institutions, dated samples of timber, militia lists, and registers of new citizens will reveal that the opportunities for employment in the building industry were far from stable after the Black Death. Different phases of growth and decline suggest that we cannot simply project the experience of the full-time carpenters of the water board unto the working year of their colleagues for the entire late medieval period.

2.1 Pick a number. Estimates of the work year in the historiography

Employment records of labourers are scarce for the premodern period. Even when sources are available, it is difficult to reliably calculate the work year. The amount of work is often too limited, either in scope or in time, to gather enough data. Manors employed labourers chiefly during the harvest, while relying on their servants for the rest of the year. The latter was hired on an annual basis, obscuring how many days they actually toiled. Large building projects peaked demand for construction labour only during a few years, which offers no insight into structural changes over the long-term. In the few cases that serial records do exist, the nature and intensity of the work varied too much to be comparable. At Westminster abbey for instance, probably the most complete series for large-scale construction in premodern England, the number of masons hired and the average annual expenditure for building the nave varied significantly between periods (from 0 to 26 masons and from 68£ to

495£ respectively).[218] As a rule, labourers in such projects were hired on a temporary basis, mostly by the day or the week, to accommodate for the fluctuating workload and needed skills. While this casual employment resulted in the recording of the exact number of days worked per labourer, the recorded figures cannot be used as a proxy for the length of the work year, since it also provided labourers the flexibility to engage elsewhere when not hired on the site, thus leaving us in the dark about total employment.

Given the lack of reliable empirical data, historians have mainly turned towards a theoretical number of workdays per year as a substitute. Some scholars have tried to calculate the maximum work year, whereas others have also tried to estimate how many of these workable days people actually toiled when fully employed. As a result, estimates of what constituted a typical work year in premodern times have been wildly divergent (see Table 2.1). Although the first approach seems relatively straightforward, historians have come up with different maxima due to differences in the work week, varying between five and six days, seasonality, and the number of holidays. Some occupations were more dependent on weather conditions than others. Masons, for instance, could not work when temperatures were low because their mortar would crack and crumble. Practices regarding religious festivities differed greatly between locations and between years. For example, all works ceased during 20 holidays at the building of Beaumaris Castle in 1319 versus 43 holidays at Eton College in 1445. To complicate matters further, some employers paid their labourers for days they had not toiled. Again, practices varied, even between occupational groups working at the same project. At Eton college, masons received a wage for 34 holidays, whereas bricklayers only received remuneration for three holidays.[219] Assuming a six-day work week, one could argue that the maximum work year compromised 303 days for the former and 272 days for the latter when assessing income, but only 269 days for both when assessing productivity. If records of one building site in one year already present us with three possible estimations alone, it is hardly surprising that no clear consensus on the maximum work year exists.

While informative for certain questions, such as estimating the poverty line (see Chapter One), establishing the maximum work year does not solve the issue at hand because it simply replaces one static unit of measure, namely the daily wage, with another, i.e. the daily wage multiplied by a fixed number for each year. Some historians have consequently developed different methodologies to calculate fluctuations in the typical work year. One of the earliest examples pertains to the work of Herman Van der Wee, who tried to control for changes in

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[218] Douglas Knoop and Gwilym Peredur Jones, *The mediaeval mason. An economic history of English stone building in the later middle ages and early modern times* (Manchester: Manchester University Press, 1933), 135-36.
[219] Ibid., 118-21.

TABLE 2.1 SOME ESTIMATES OF THE LATE MEDIEVAL WORK YEAR IN THE LITERATURE

Source	Location	Century	Occupation	Max	Actual
Rogers	England	n/a	Building labourer	235-312[1]	-
Clark & Van der Werf	England	16th	Farm labourer	257	-
Allen	England	n/a	Building labourer	255	-
Blanchard	England	15th	Farmer-miner	265	165-260[2]
Humphries & Weisdorf	England	14th-16th	Farm labourer	-	100-208[3]
Scholliers	Low Countries	15th-16th	Building labourer	264	-
Van der Wee	Low Countries	15th	Building labourer	270	191-224
Baulant	France	16th	Building labourer	275	260-268
Ridolfi	France	14th-15th	Building labourer	265	255-290*
Sharp & Weisdorf	France	16th	Building labourer	-	220-365*
Malanima	Italy	14th-16th	Urban and rural	-	180-290*[4]
Rota & Weisdorf	Italy	16th	Farm labourer	-	130-235*

Notes: * Estimated from graph since no exact figures were given.
1. Differences due to seasonality. Lowest number pertains to masons, whereas highest pertains to carpenters.
2. Based on calculations of Allen and Weisdorf "Was there an industrious revolution?", see text for comments.
3. Calculated from table A2: implied annual income divided by day pay.
4. Based on trendline and assuming 10-hours workdays.

Sources: Rogers, Thorold. *1259-1400*, 43-45; Clark, Gregory, and Ysbrand Van Der Werf. "Work in Progress?", 837; Allen, Robert C. "The Great Divergence in European Wages", 425; Blanchard, Ian "Labour Productivity.", 3; Humphries, Jane, and Jacob Weisdorf. "Unreal Wages?", online appendix table A2; Scholliers, Etienne. *Loonarbeid En Honger*, 86; Van der Wee, Herman. *The Growth of the Antwerp Market*. Vol. 2, 50-51 and 540-544; Baulant, Micheline. "Le Salaire Des Ouvriers Du Bâtiment", 471; Ridolfi, Leonardo. "The French Economy in the Longue Durée", 114-125; Sharp, Paul and Jacob Weisdorf. "French Revolution or Industrial Revolution?", 84; Malanima, Paolo. "Wages, Productivity and Working Time.", 168; Rota, Mauro, and Jacob Weisdorf. "Italy and the Little Divergence.", 17.

the demand side of labour. Based on the total expenditure in the accounts of large construction projects in the Lier-Antwerp region, he derived a coefficient for building activity between 1437 and 1660. The year with the highest reported expenses, adjusted for inflation, was taken as benchmark. Van der Wee assumed that labourers worked the theoretical maximum days in this period, which he set at 270 days, and adjusted the work year for other periods based on the corresponding coefficient of building activity.[220] Although his pioneering efforts are commendable and look rather convincing, with some authors even believing that he reported real employment data, the results are ultimately a statistical fiction

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[220] Van der Wee, *The Growth of the Antwerp Market*, vol. 2, 50-51.

due to some questionable assumptions.[221] First, the benchmark of 270 days is a theoretical maximum for which Van der Wee gives little to no explanation. Second, he does not account for any changes in the supply of labour. At the peak of demand, for example, when real wages were high, he assumes that construction labourers had no leisure preference. Moreover, the size of the work force was very dynamic in the sixteenth century. During the Golden Age of Antwerp, the demand generated by a booming housing market and large public infrastructural works, such as the new fortifications, was only met by attracting migrants, who were not part of the carpenters' and masons' guilds, but who were condoned by the urban government. Conversely, when crisis hit hard, these 'illegal' workers were expelled from the construction market and, in many cases, pushed out of the city.[222] This flexible system allowed employers to adjust the number of employees rather than the amount of work per labourer (alone). Third and final, the expenditures of seven religious institutions seem hardly representative for the demand in the entire building sector of the Duchy of Brabant, especially in the context of a booming market for private housing.

In a similar vein, the work of Ian Blanchard is often cited as a robust estimate of the actual late medieval work year. In reality, Blanchard probably never intended for his study to be used this way. His primary objective was to explain how the work psychology of different professional groups in the villages influenced the rapid expansion of the English mining industry in the fifteenth and sixteenth century. Tellingly, he never provided exact figures for a typical work year, but instead focused on labour intensity. The intensity was based on the ratio between the average annual ore output per capita and a theoretical maximum output, which was calculated by multiplying an estimated constant daily extraction rate with the maximum number of days worked per year. He assumed without much explanation that professional miners could work no more than 265 days per annum in the mines and farmer-miners only 130 days since they also had land and animals to tend to. It was only three decades later that Robert Allen and Jacob Weisdorf derived the evolution of the typical work year from the appendices to confront it with their estimates of the minimal number of days required to secure a basic subsistence in order to identify potential industrious revolutions in time. Subsequently, their figures have been adopted uncritically by other scholars.[223] They

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[221] See for example Munro, "Builders' wages," 1029. "Fortunately, however, we do know, from the research and publications of Herman Van der Wee, the actual number of days of employment in the building trades in the Antwerp-Lier region of Brabant."

[222] Jan De Meester, "Gastvrij Antwerpen? Arbeidsmigratie naar het zestiende-eeuwse Antwerpen" (PhD thesis, University of Antwerp, 2011), 273-90.

[223] The estimate was used for example in: S. Broadberry et al., *British Economic Growth, 1270–1870* (Cambridge University Press, 2015), 264.

showed a clear and significant increase in work time between the fifteenth and sixteenth century (+58%, see Table 2.1). Unfortunately, Allen and Weisdorf misinterpreted the data. For their calculations, they used the labour intensity for all of the inhabitants in the mining villages in the region of Mendip, multiplied it by the assumed 130 days that miner-farmers could spent on non-agricultural activities and added the assumed 135 days of agricultural work.[224] Besides the already hypothetical nature of the days per year for both activities, this methodology is problematic for two reasons. The first reason is that the data for Mendip does not control for occupation. During the observed period, the villages underwent profound societal change. Whereas the farmer-miner was the most common occupational group in the beginning (45% of the population), the professional miner came to completely dominate the distribution at the end of the period (increasing from 15% to 97% of the population).[225] It is therefore unsurprising that the labour intensity in the mining industry of Mendip gradually increased until the near theoretical maximum was reached. The data is thus a reflection of the professionalisation of the mining industry rather than of the productivity of a fixed group of labourers. Ironically, Blanchard did provide the labour intensity for some farming miners in the region at different time intervals.[226] Applying the formula of Allen and Weisdorf on this information shows only a minor increase in number of days toiled (+12%, from 161 days in 1433 to 179 days in 1598). The second reason is that the area of Mendip is not representative for other mining villages in England. In many locations, the farming miner was not replaced by his professional colleague. Here, the impressive gains in industrial output were foremost the result of population increases. Blanchard argues that these farmers did not toil harder during the sixteenth century despite falling agricultural income and rising metal prices.[227] This attitude is very much in line with the labour intensity of the few remaining farming miners of Mendip we just mentioned. What we don't know, however, are the fluctuations in their agricultural productivity nor their employment in any other activities besides mining. In short, the data of Blanchard, how exceptionally detailed for one secondary profession it may be, does not provide us with good estimates for the typical work year.

Since the last two decades, the search for more accurate estimates of the typical work year and its evolution over time has taken up pace. With data on various related indicators, such as total output or wage rates, having become more available and easier processable, scholars have increasingly left behind the use of a single source type on the local or regional level in favour of complex modelling with large databases on the national or international level. For example,

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[224] Allen and Weisdorf, "Was there an 'industrious revolution'," 720. They specifically used table C2, row 3b and 3c.
[225] Blanchard, "Labour Productivity," 9-12, 18.
[226] Ibid., 23 (table B2-1).
[227] Ibid., 12-15.

Leonardo Ridolfi employed records for 52 different building sites in eleven locations in England and France to estimate the weekly participation rates of the employees. Paolo Malanima derived annual working hours based on the relation between the GDP, the labour force, and its wage for Central-Northern Italy, which required the combination of dozens of already existing data series for those variables.[228] Reviewing all the limitations and assumptions of all the different models would lead us too far. As an example, we will focus only on the most promising model, at least as measured in number of articles and citations. In 1998, Gregory Clark and Ysbrand Van Der Werf suggested that the income of annual servants could be used to determine the relative evolution of the work year. They argued that the earnings from a certain job would be similar for all labour contracts, whether daily or annual, or, if they were not similar, that the bias for one or the other contract would be stable throughout time. The income of employees with annual contracts would therefore be equal to the daily wage rate multiplied by the number of days a casual employee would normally toil per year (and adjusted by a fixed coefficient depending on the magnitude of the bias). In other words, the relative evolution of the work year can be computed by dividing the annual income by the daily wage rate of a casual employer performing similar work. Clark and Van Der Werf only tested this methodology on a small sample of rural workers (n=123) in England, Wales and Scotland between 1560 and 1869 for which they had precise earnings. They were rather hesitant to apply the methodology to the late medieval period because they believed that during this time farm servants were rarely employed during the whole year, even if they were contracted for the entire duration.[229] Later, Jane Humphries and Jacob Weisdorf expanded the research greatly both in sample size (n=6,800) and in the period covered (1260-1850) for England. Other scholars have conducted similar studies for Tuscany and Denmark, but unfortunately data was not available or collected for the Late Middle Ages.[230]

Much of the constraints and flaws of the methodology originally expressed by Clark and Van Der Werf have largely disappeared in the new studies. The estimates of the typical work year are no longer interpreted as a relative unit but as an absolute one, allowing even comparisons

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[228] Leonardo Ridolfi, "The French economy in the longue durée. A study on real wages, working days and economic performance from Louis IX to the Revolution (1250-1789)" (PhD thesis, IMT School for Advanced Studies, Lucca, 2016), 99-104; Paolo Malanima, "Wages, Productivity and Working Time in Italy (1270-1913)," *Journal of European Economic History* 36 (2007).

[229] Gregory Clark and Ysbrand Van Der Werf, "Work in Progress? The Industrious Revolution," *The Journal of Economic History* 58, no. 3 (1998): 831-33 and 36-39.

[230] Jane Humphries and Jacob Weisdorf, "Unreal Wages? Real Income and Economic Growth in England, 1260–1850," *The Economic Journal* 129, no. 623 (2019); Rota and Weisdorf, "Italy and the little divergence."; Jensen Peter Sandholt, Radu Cristina Victoria, and Sharp Paul, "Days Worked and Seasonality Patterns of Work in Eighteenth Century Denmark," (European Historical Economics Society (EHES), 2019).

between places. In other words, both employers and employees across the whole of Europe and during the entire premodern period are expected to have had no or exactly the same preference for one or the other form of contract. Such an assumption is hard to believe. Job and food security must have been seen as especially attractive in times of unpredictable market fluctuations and regular harvest failures. Legal or social norms and power relations could prevent labour mobility or limit remuneration. Most tellingly, data for Denmark shows that a casual labourer had to work for more than 365 days per year to earn the same income as his colleague in annual service during the majority of the eighteenth century, which would of course be impossible. It implies that employers valued the casual labourer much less than the servant, it implies a segmented labour market.[231] Equally problematic is the way in which the total income of annual workers is calculated. The vast majority of such labourers gained (part of) their wage in kind, receiving food, lodging, clothing and/or services, such as the use of farm equipment and horses. Whereas Clark and Van Der Werf were cautious to only include annual salaries paid entirely in cash, or at least completely valued by the source in money of account, more recent studies follow the methodology of Humphries and Weisdorf to also include compensations in kind. According to the latter authors, non-pecuniary benefits can reliably be appraised by the price of a respectable consumption basket, much akin to the ones we used in our previous chapter. Many of the reservations we made there, such as the lack of reliable data on housing prices or the representativeness of prices from one region, can be applied here as well, but the most fundamental one pertains to the usage of a Laspeyres index as a proxy for real consumption. As we have seen, such an index keeps the quantity and quality of goods in a basket fixed for the entire period. It consequently assumes that the compensation in kind for annual workers never changed across time and space, which runs contrary to the historical record. On the Winchester bishopric's demesnes in the early fourteenth century, for instance, the permanent staff of the manor, called *famuli*, received greater amounts of barley and oats whenever wheat was unavailable.[232] In the long run, more fundamental consumer changes are apparent as well. After the Black Death, the average diet became more diverse and richer in calories. Indeed, food allowances to *famuli* and occasional harvest workers at Sedgeford manor in eastern England show a significant increase in the amount of meat from 1353 onwards.[233] Humphries and Weisdorf performed two robustness checks to try and estimate the impact of such changes. In one check, they allowed the consumption basket to vary hypothetically between a respectable level (2,500

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[231] "Days Worked and Seasonality Patterns," 19-20.

[232] Slavin, "Market Failure during The Great Famine in England and Wales (1315–1317)," 17-18.

[233] Christopher Dyer, "Changes in Diet in the Late Middle Ages: The Case of Harvest Workers," *The Agricultural History Review* 36, no. 1 (1988).

kcal) and a bare bone level (2,100 kcal). The relatively small difference in caloric intake (-16%) had a significant effect on the annual income, in some cases nearly halving income levels and conversely doubling assumed employment.[234] In another check, the authors calculated the implied value of compensations in kind by subtracting the cash payments received by labourers who did receive non-valued allowances from the wages of those whose total income could be valued precisely. Confronting this alternative estimate for the value of compensations in kind with the estimate based on the price of consumption baskets, shows that they differed on average 27% and up to a maximum of 74%, again raising doubts about the use of a Laspeyres index.[235] Remarkably, Humphries and Weisdorf concluded that "the trends and levels displayed [...] are robust to the spot checks."[236]

The extensive and critical review of the past attempts to estimate the working year in no way seeks to belittle the work of the mentioned historians. It is a testament to their ingenuity and inventiveness that they were able to develop new methodologies for a fundamental variable for which we have no solid direct data. Their results should not be disregarded because they give us some plausible scenarios when nothing else does, they spark discussion over a crucial theme in economic history. We should however be wary to the limitations and assumptions inherent to their models. In all three examples we discussed, later generations often cited and used the figures at face value or adapted the methodology to new case studies without much consideration about the specific context in which the initial estimates came about.[237] Although it is tempting to derive national series of employment with the help of increased computing power in recent years, our understanding of the evolving work year of different groups and in different locations in the Middle Ages is still too limited to really test the validity of such an analysis. In this sense, the work of Blanchard has been the most informative, looking at regional and occupational evolutions in both the supply and demand for labour in the English mining industry. In the next few pages, we will try and conduct a similar study for the building workers in the area around Bruges.

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[234] Humphries and Weisdorf, "Unreal Wages?," Appendix, figure A3.

[235] The authors do not confront the data directly but only plot the income of valued annual work against the income of estimated annual work. The numbers can be derived however from the decennial values reported in the Appendix table A5 (implied privileges and Allen's basket). Differences may be smaller in a year-to-year comparison, but the graph presented in figure 1 also suggests significant discrepancies.

[236] Humphries and Weisdorf, "Unreal Wages?," 2876.

[237] In a most recent example, the methodology of Humphries and Weisdorf, which was already an adaptation of the methodology of Clark and Van Der Werf, has been applied uncritically to estimate family income in England. Sara Horrell, Jane Humphries, and Jacob Weisdorf, "Family Standards of Living Over the Long Run, England 1280–1850*," *Past & Present* 250, no. 1 (2020).

2.2 Lazy or industrious? The work year of building labourers

As we have seen in the previous section, records for building labourers are one of the few sources that mention the number of days toiled, but the nature and scope of the work is often too irregular to be representative for typical employment levels. However, the accounts of the water board of Blankenberge offer us a unique opportunity to circumvent these problems because it needed a continuous input of labour for a series of standardised works. A water board was an autonomous local authority responsible for the maintenance of drainage and flood control in coastal areas. They were established along the North Sea from the later Middle Ages onwards. While most water boards limited themselves to the supervision or inspection of the required works performed by individual landowners until the fifteenth or even sixteenth century, the Flemish institutions are characterised by an early centralisation. In the commercial metropolis of Bruges and its surroundings, water boards started to perform those works themselves by hiring labourers directly or outsourcing projects to contractors as early as the second half of the thirteenth century. The water board of Blankenberge was the largest in the County, encompassing circa 170 km² between Bruges, the small town of Oudenburg, and the two coastal ports of Oostende and Blankenberge (see map 2.1).[238] Detailed accounts for the works and the labourers employed therein are preserved from 1285 on, albeit with important gaps between 1308 and 1338 as well as between 1410 and 1476.[239]

Thanks to a natural dune range, the water board was relatively sheltered from the direct impact of the sea. As a result, the majority of labour was spent on the construction and upkeep of the drainage system rather than on storm protection, as was common in other regions. Waterways in this area have only a mild slope and limited profile. In combination with tidal currents and the low position of the area relative to the sea level, these characteristics make it incredibly difficult to control the outflow of rainwater towards the sea. Most tellingly, only one of the three major dikes in the water board of Blankenberge served as a seawall against the North Sea, while the other two were constructed inland against flooding from neighboring water boards. An extensive network of connected canals and ditches together with a series of sluices controlled the flow of water inside the water board. At the city of Blankenberge a large tidal sluice prevented salt water from entering the

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[238] Soens, *De spade in de dijk?*

[239] "Rekeningen van de wateringen," (Bruges: Bisshoppelijk Archief Brugge); "Wateringen," in *Sint-Jan* (Bruges: OCMW-archief Brugge); "Rekeningen van de watering van Blankenberge," (Bruges: Rijksarchief Brugge).

MAP 2.1 THE WATER BOARD OF BLANKENBERGE IN THE COUNTY OF FLANDERS
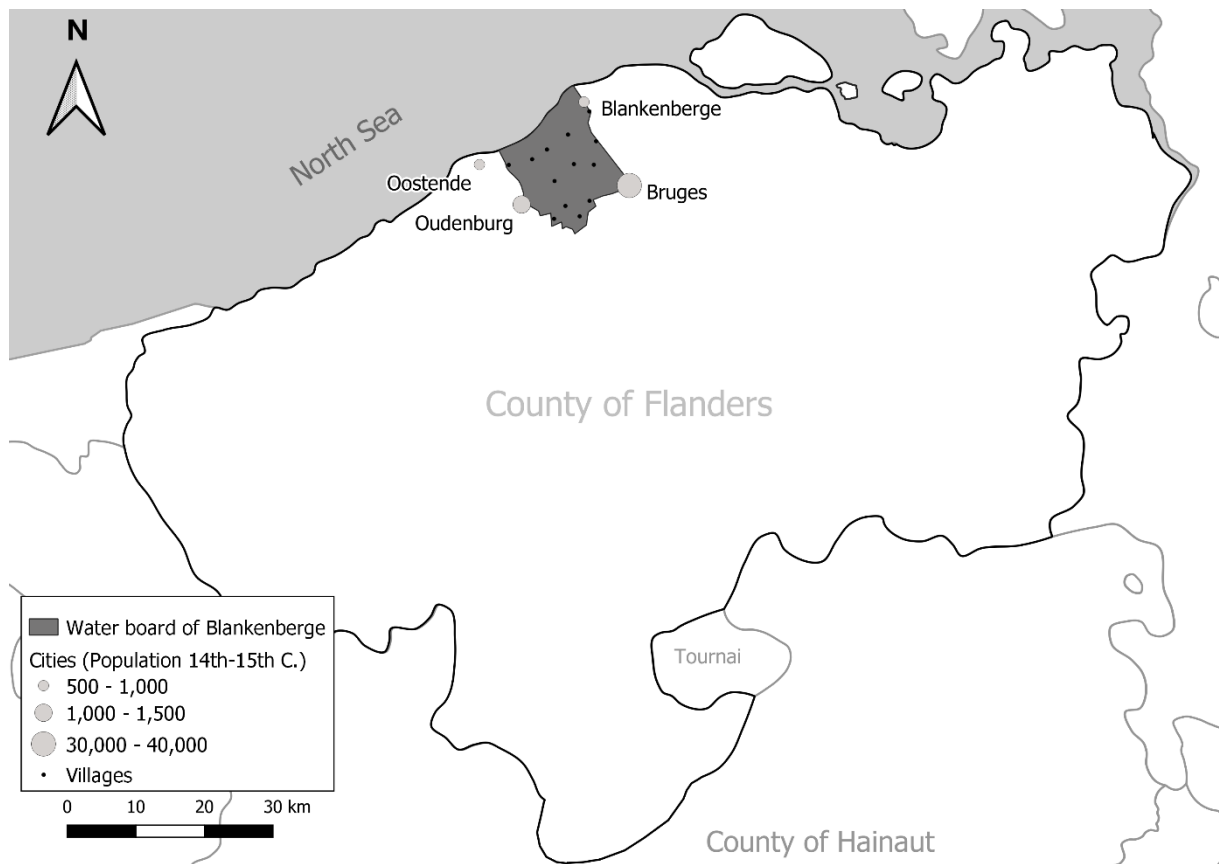
waterways and disrupting the drainage. Given the hard conditions under which all of these infrastructures had to operate, they regularly needed to be repaired or replaced. To this end, the water board of Blankenberge hired dozens of unskilled labourers, such as diggers and carriers, and skilled labourers, mainly carpenters and sawyers, every year. Because these labourers were paid *ad nominatim* by the day, the accounts provide us detailed information on the number of days worked by each individual. In the thirteenth century, the entries are still limited to summaries for every few months, but gradually they become more elaborate. From the sixteenth century on, we can retrace exactly who performed which job on a weekly basis. It is this wealth of information that allows us to reconstruct employment rates for building labourers in the water board Blankenberge.

Obviously, we can't use all data uncritically. The employment rates of individuals can only be seen as representative for the evolution of the typical work year of a broader group if the following conditions are met: the social profile of the labourers has to be comparable over time; employment by the water board has to occupy a fixed share of their total work time; changes in the type of work done and the required skill to perform these have to remain limited; and labourers must be able to choose the number of days they toiled for the water

board to a reasonable degree. Appendix 2.1 explores these issues in detail and finds that the head of the carpenters, who was responsible for overseeing the different works but also participated in them, and his most assiduous assistants, who were equally skilled carpenters, met all the presupposed criteria. Their records allow us to retrace the evolution of the work year for full-time employers between 1285 and 1550. It is important to stress that the head of the carpenters and a select few of assistants had a clear advantage compared to building labourers in general. Thanks to their permanent position in the water board of Blankenberge, they rarely had to seek job opportunities whereas others had to move from one short-term project to another. Taxation records for the town of Blankenberge reveal that they belonged to the higher middle classes (P56-P81; see Appendix 2.1, Table A2.2). In this sense, their absolute employment rates might overestimate the typical work year and annual income in the building industry. They present an idealised case. Nevertheless, the order of magnitude and the relative evolution of the number of days worked are probably indicative for broader changes in the work year of construction craftsmen in the area around Bruges.

Figure 2.1 plots the evolutions of the work year in the water board for the head of the carpenters and for the permanently employed assistants. To distinguish long-term trends, we have opted to use polynomial regressions. All series clearly show three important changes in the work year during the Late Middle Ages. First, employment rates increased between 1285 and the 1350's. Next, they decreased rapidly and stagnated at a low level until the middle of the fifteenth century. From then on, employment rates started to climb again, reaching unprecedent heights at the end of our observations. To explain these trends, we have performed a multivariate regression analysis for four sample groups, including the head of the carpenters, his two most assiduous assistants, all assistants who worked more than 150 days per year, and the most industrious carpenter per year. The results can be found in Appendix 2 (see Table A2.5). They show that for all groups both the demand of the water board for carpenters and the offered wage played an equally crucial role in the decision-making process. The first variable will be discussed in the next section. For now, we only focus on the supply side. Apparently, the carpenters of the water board had a clear leisure preference, which is in line with the traditional historiographical view. When daily wage rates, adjusted for inflation, increased, they started to work less. As we have seen in Chapter One, the evolution of living standards was indeed reverse to the ones observed in Figure 2.1. The Late Medieval Crisis pushed real wages down until the arrival of the Black Death and subsequent plague waves. The mortality crisis fundamentally reshuffled the functional distribution of income in favour of labour, which resulted in rapidly increasing remuneration. In the fifteenth century, wages stagnated at a high level and started their long decline from the last quarter on.

FIGURE 2.1 THE EVOLUTION OF THE WORK YEAR IN THE WATER BOARD (N=354)
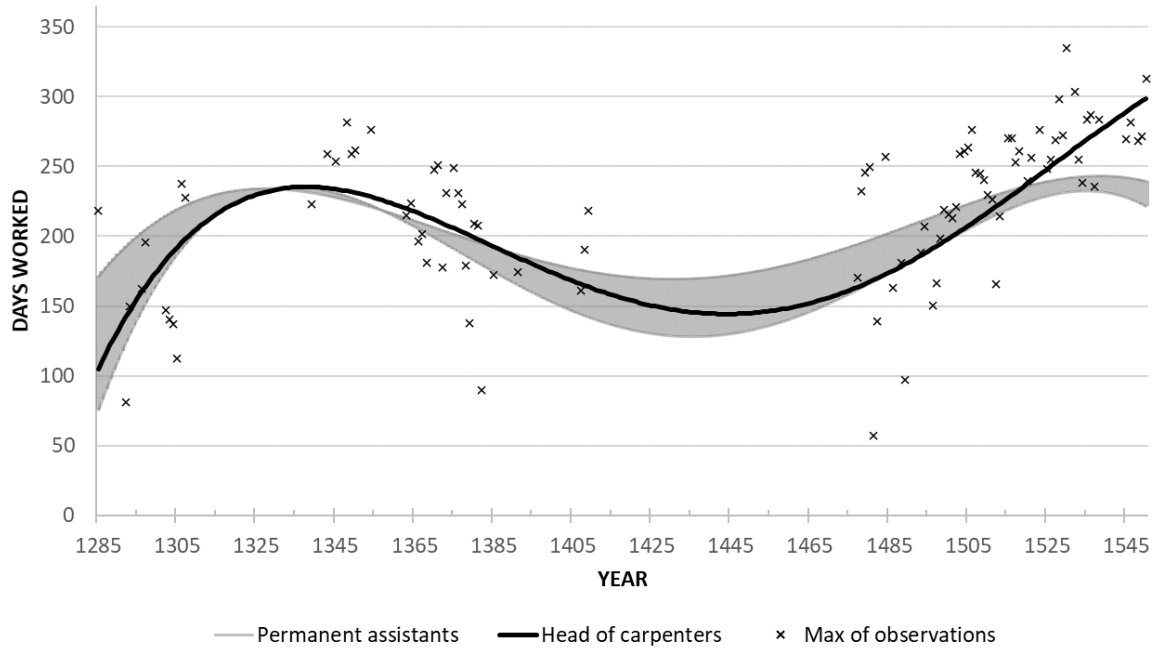
Notes: trendlines are fourth degree polynomials. The interval for permanent assistants is calculated based on the data for all assistant-carpenters who worked for more than 150 days (half-time) and for the main two assistants. For more details, see Appendix 2.1 and 2.2.

FIGURE 2.2 THE LEISURE PREFERENCE OF CARPENTERS PER PERIOD (N=139)
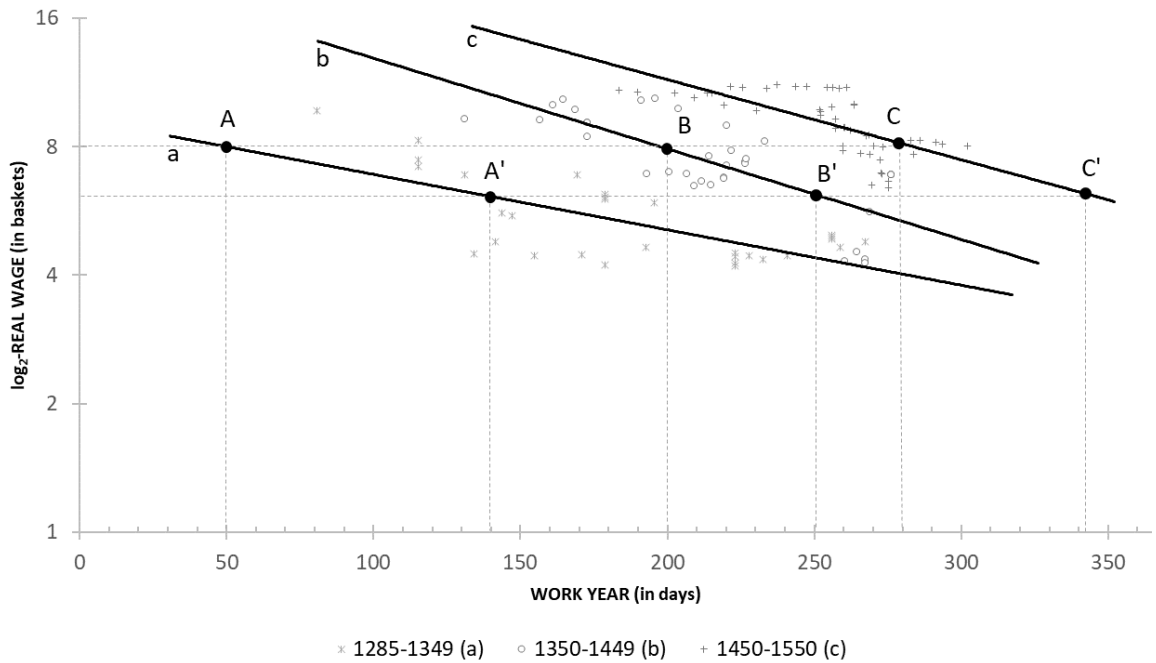
Notes: For the work year, we used the 5-year moving averages of the maximum employment rates in previous years. For the real wages, we used a similar 5-year moving average of the mode of daily wages paid to carpenters in the water board divided by the cost of a daily consumer basket.

Sources: See Appendix 1 for real wages and Appendix 2 for the work year.

The persistence of a strong leisure preference among the carpenters of the water board does not rule out changes in their attitude towards work. Figure 2.2 reveals the relationship between employment rates and the real wage (plotted on a logarithmic axis) for the three periods we have distinguished above (lines a, b, and c). What is interesting is that the slope of every regression is roughly similar, but the intercepts significantly increase as time progresses.[240] This implies that changes in one variable provoked similar changes across all periods under consideration. What did change, is the targeted level of income from labour. Let us take for example a fictional moment in time for all three periods when carpenters earned the equivalent of eight consumer baskets per day (points A, B and C in Figure 2.2). According to the regressions, workers in the first period would have been content with their remuneration after 50 days. Labourers in the second and third period would have worked much longer and would have stopped only after 200 and 280 days respectively. If, in our hypothetical case, real wages suddenly dropped to the equivalent of six baskets per day in the next year, the carpenters had to work much harder to reach their desired level of income. Before the Black Death, employment rates would have increased from 50 to 140 days (point A'). Similarly, the work year became longer in the other periods (points B' and C').

Did the fully employed carpenters of the water board became more lazy or industrious after the Black Death? Based on the evidence presented here, the answer is ambiguous. On the one hand, the carpenters did trade some work time for more leisure time. As real wages soared to a new all-time high, employments rates dropped significantly. In the eyes of contemporary employers, the continuous and long-term shortening of the typical work year must have been a sign of indolence. In such a context, the many literary comments on the dangers of sloth and idleness, such as the poem of Piers Plowman (see introduction), are understandable.[241] On the other hand, the trade-off between leisure and work was much smaller than one would have expected. If daily wages had been comparable to the previous period, employment rates would have been higher. In this sense, the late fourteenth-century carpenters were actually more industrious than their colleagues before the Black Death. In the first period (1285-1349), the desired or, in the case of very high employment rates, attainable level of income from labour averaged around 2.5 consumer baskets per year for both the head of carpenters and his assistants (see also Figure 2.3). After the mortality crisis (1350-1449), this figure had nearly doubled (+80%), to an average of 4.5 annual consumer baskets! There are several possible explanations for such a large increase:

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[240] The coefficients beta for the multivariate regression can be found in appendix 2.1. When controlling for demand, the difference between periods is equally significant.

[241] Hatcher, "England in the Aftermath of the Black Death," 13-19.

First, household expenditures may have increased. For example, the mortality crises may have triggered a change in the household composition whereby the male head needed to provide for more members than before. This seems improbable in the light of the current historiography. According to Tine de Moor and Jan Luiten Van Zanden, households actually became smaller during the late fourteenth and fifteenth century, which witnessed the emergence of the so-called European marriage pattern, whereby men and women married comparatively late, and a relatively large proportion remains unmarried as a reaction to high wages and high demand for labour.[242] Alternatively, household expenditure may have increased due to increased taxation. Whereas direct taxation by the central government, called *beden* or *aides*, were only an exception in the County of Flanders before, they became a regular feature of the fiscal landscape from the 1360's on (see also Chapter Four). In the first half of the fifteenth century, the total amount levied increased steadily. In the long-term, the financial burden on the household budget was however limited, representing on average less than half a day's wage of a carpenter per capita.[243] Far more important were the indirect taxes levied by local, mostly urban, authorities on consumption. Faced with mounting public debt, many towns continuously increased the excises on foodstuffs, such as beer and grain. According to John Munro, this fiscal evolution eliminated much of the gains in real wages after the Black Death. For the small town of Aalst, situated in the east of the County at the banks of the Dender river, the average per capita tax burden increased from 3.7 day's wages of a skilled building labourer in the 1390's to 5.4 day's wages in the 1440's. If the male head was the only breadwinner in a household of four persons, these figures represent respectively half a month's and one month's wages.[244] While it certainly constituted a significant share of the household budget, the changes in the fiscal burden by excises cannot fully explain the steep rise in the desired level of income in this period. Even if we assume the extreme case of an entire town of households with only one breadwinner, apply the lowest indirect tax value to the income of our carpenters in the first period and apply the highest value to the income

[242] De Moor and Van Zanden, "Girl power."

[243] W. P. Blockmans, "The Low Countries in the middle ages," in *The rise of the fiscal state in Europe, c. 1200-1815*, ed. Richard Bonney (Oxford: Oxford University Press, 1999); Erik Thoen and Tim Soens, "The Social and Economic Impact of Central Government Taxation on the Flemish Countryside (end 13th. - 18th. Centuries)," in *La Fiscalità Nell'economia Europea Secc. XIII-XVII*, ed. Simonetta Cavaciocchi, Atti delle "Settimane di Studi" e altri Convegni (Firenze: Firenze University Press, 2008).

[244] John Munro, "The Usury Doctrine and Urban Public Finances in Late-Medieval Flanders: Annuities, Excise Taxes, and Income Transfers from the Poor to the Rich," Department of Economics (Toronto: University of Toronto, 2007). Working paper. See especially table 9.

of their colleagues in the second period, the increase in taxation can only explain seven per cent of the rise.[245]

A second reason for the change in the desired level of income can be found in the functional distribution of income. Since the Black Death and recurrent plague waves caused a severe demographic crisis, labour suddenly became scarce. In contrast, the total stock of land and capital remained unchanged. Redistributed over fewer people, these factors of production thus became comparatively more abundant per capita than before. Real profits from rents and land declined accordingly in the second half of the fourteenth century.[246] As a result, labour became a more attractive source of income in our second period. While it is impossible to retrace the share of each factor in the households' income of the carpenters of the water board, let alone any evolution therein, there is some scattered evidence that they did invest in a wide variety of income sources. For example, Claes Buekel leased the revenue of both the excises and inheritance taxes from the city of Blankenberge in the first half of the fifteenth century. Similarly, the head of the carpenters Adriaan Stier bought the right to collect the excise on beer and the inheritance taxes from the same town in 1484.[247] He also owned 2.5 hectares of land near the village of Uitkerke.[248] All of these investments required some degree of management and thus demanded time that could not be spent labouring. With rising real wages after the Black death, the opportunity cost of passive and portfolio income increased. It is hence plausible that the carpenters of the water board decided to shift their attention more towards labour. On the other hand, medieval craftsmen were not utility-maximising agents as they would be in a capitalist society. Landed possession and tax-farming were not only a source of income, but also generated social prestige and provided some sort of food or financial security in a time of erratic markets.[249] The relative decline in their cost made them attainable to a larger share of the population. Indeed, after land prices plummeted in the wake of the Ghent Revolt (1379-85), urban middle classes did invest en masse in the surrounding

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[245] Based on table 9 of Munro (cfr. Supra), we deducted 21.6 days from the employment rates of the period 1350-1449 and 14.7 days from those of the period 1285-1349 in order to calculate the annual income after indirect taxes. The average desired level now increased from 2.4 to 4.15 annual baskets (+73%) compared to 2.5 and 4.5 annual baskets before indirect taxes (+80%).

[246] See for example: Sidney Homer and Richard Sylla, *A History of Interest Rates*, 4 ed. (Hoboken: John Wiley & Sons, 2005), 67-144; D.M. Nicholas, *The Metamorphosis of a Medieval City: Ghent in the Age of the Arteveldes, 1302-1390* (Lincoln: University of Nebraska Press, 1987), 214-23; Gregory Clark, "The interest rate in the very long run: institutions, preferences and modern growth," (UC Davis, 2005); Stephan Nicolussi-Köhler, "The price of money. Interest rates in medieval sources: Examples from Tirol 1287-1406.," in *EURHISFIRM working papers* (2020).

[247] "Stadsrekeningen Blankenberge," in *Registers van de Rekenkamer* (Brussels: Algemeen Rijksarchief Brussel).

[248] "Ommeloper," (Bruges: Rijksarchief Brugge).

[249] Thoen, "Social agrosystems," 25; Jaco Zuijderduijn and Tine De Moor, "Spending, saving, or investing? Risk management in sixteenth-century Dutch households," *The Economic History Review* 66, no. 1 (2013).

countryside.[250] In a similar vein, annuities, which required but limited management, remained a popular source of income for a wide spectrum of social classes in the Low Countries. In early sixteenth-century 's Hertogenbosch, buyers of public annuities could be found in all percentiles of the personal income distribution.[251] In late fifteenth-century Haarlem, life annuities were not bought in search of profit maximisation but served primarily as a security for old age or the untimely death of a household member.[252] When death was but a plague wave away and capital was relatively abundant per capita, it seems therefore probable that investments increased rather than decreased between 1349 and 1450.

How much a larger portfolio with smaller returns exactly affected the total household income of the carpenters of the water board and, by extension, employment rates, is unfortunately impossible to determine. We can however estimate the probability that changes in the return on capital would completely explain the rise in the desired level of labour income. If we assume that, contrary to the two hypotheses presented above, the amount of capital invested did not change between the two periods, we can deduce the maximum share labour could have constituted in the total income so total income levels remained stable in the light of falling rates of return. Let T be the total income, L the income from labour, K the total capital invested in land and annuities, r the rate of return, 1 and 2 the respective periods of 1285-1349 and 1350-1450:

$$T_1 = T_2 \Leftrightarrow L_1 + (r_1 K_1) = L_2 + (r_2 K_2)$$

We already know the value for the income from labour (L in the equation) from our earlier computations (2.5 and 4.5 annual baskets). The rates of return (r) in medieval Flanders are given by Gregory Clark, who estimates them to be 10% per year in our first period and 6.4% in our second.[253] If we apply these figures to our equation and set the invested capital at a constant value, we may solve for x:

$$2.5 + 0.1x = 4.5 + 0.064x \Leftrightarrow 0.1x - 0.064x = 4.5 - 2.5 \Leftrightarrow x = 55.56$$

[250] Sam Geens, "The great destruction of people and wealth. The impact of the Ghent Revolt on wealth inequality in the last quarter of the fourteenth century.," in *Inequality and the city in the Low Countries (1200-2020)*, ed. Bruno Blondé, et al., Studies in European Urban History (Turnhout: Brepols, 2020), 222-25.

[251] Blondé and Hanus, "Beyond building craftsmen. Economic growth and living standards in the sixteenth-century Low Countries: the case of 's-Hertogenbosch (1500–1560)," 198-201.

[252] Jaco Zuijderduijn, "The Ages of Women and Men: Life Cycles, Family and Investment in the Fifteenth-Century Low Countries," in *Lund Papers in Economic History. Population Economics* (Department of Economic History Lund University, 2016).

[253] Gregory Clark, "The cost of capital and medieval agricultural technique," *Explorations in Economic History* 25, no. 3 (1988): 274.

As is evident from this calculation, the implied amount of capital invested is no less than 55.56 annual baskets or the equivalent of 12 to 22 annual wages! It also means that the labour income only amounted to 31.05% of the total income between 1285 and 1349.[254] All these figures seem very unlikely for fully employed carpenters, who relied foremost on their skills as craftsmen. The median value of the total wealth recorded in a sample of circa 1,000 probate inventories for the city of Ghent between 1349 and 1400 amounted to 43.2 annual baskets. For the lower to middle classes (QU1 to QU3), the majority of their wealth was represented by their house, furniture and cash, whereas annuities and land only constituted 15 to 32% of the inventories' total value.[255] In this perspective, the calculated 55.56 annual baskets seem like a gross overestimate. Obviously, real values for K_1 and K_2 would have been different and varied over time, but the equation shows that there is hardly any realistic scenario where the significant rise in the desired level of income from labour is nullified by the fall in the rate of return on capital. A higher investment in the second period would only lead to higher incomes overall. A higher investment in the first period would require an unprecedented and disproportional withdrawal from capital markets after the Black Death. If we assume that labourers gained at least half of their income from wages, investments needed to decline by minimum two thirds between the two periods (from 25 to 7.8 annual baskets) to fully explain the evolution of employment rates.[256] In other words, the main cause for the observed rise in labour income must be sought somewhere else.

The third and most important reason pertains to the improvements in the material living standard. The monotonous diet of the commoner, focused on grain, became richer and more diverse from 1349 on. In the historiography, the increased fish and meat consumption gave rise to the idea of a Carnivorous Europe.[257] For the County of Flanders, there is no conclusive evidence that the quantity of meat consumed per capita increased rapidly, though there are some indications based on hospital accounts and archaeological finds. The commercialisation of the agricultural sector in Coastal Flanders went hand in glove with the increasing importance of animal husbandry. Whether this expanding meat production was aimed at a domestic or foreign market is however an open question.[258] More tangible proof,

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[254] As calculated by: $\frac{L_1}{T_1} = \frac{2.5\ annual\ baskets}{2.5\ annual\ baskets + (0.1*55.56\ annual\ baskets)}$

[255] Database compiled together with Wouter Ryckbosch based on L. Wynant, *Regesten van de Gentse staten van goed*, 2 vols. (Brussels: Paleis der Academiën, 1979).

[256] 2.5 annual baskets +(0.1*25 annual baskets) = 4.5 annual baskets + (0.064*7.8125 baskets)

[257] Braudel, *Civilisation matérielle et capitalisme, XVe-XVIIIe siècles*, 192-98.

[258] Soens and Thoen, "Vegetarians or carnivores? Standards of living and diet in late medieval Flanders."; Anton Ervynck and Wim Van Neer, "Beef, pork and mutton: An archaeological survey of meat consumption in medieval and postmedieval towns in the southern Low Countries (Flanders & Brussels, Belgium)," *Quaternary International* (2017).

sometimes quite literal, of improvements can be found in the material culture. According to Peter Stabel, urban middle classes spurred the demand for manufactured goods, such as clothing, paintings, or furniture. Probate inventories for fifteenth-century Bruges reveal a rich consumer culture across all layers of society. Even the lowest percentiles boosted cooking utensils to prepare meat, which again hints at a more nutritious diet for the majority of the population. Design and aesthetics gradually became more important than the mere intrinsic value of objects. When real income increased, former luxuries were suddenly attainable to a larger public. In other regions, the elite reacted by proclaiming sumptuary laws, prohibiting the use of certain materials that were traditionally identified with high status, such as fur or silk, in an effort to safeguard the old social order.[259] In the Low Countries, such laws were however scarce and local. When they finally do appear more commonly at the end of the fifteenth century, they are foremost focused on protecting the domestic production of luxuries or on limiting the display of political power and alliance rather than on expressing one's identity.[260] As a result, taste and fashion already became more important social markers than the possession and display of exclusive materials in the Low Countries from an early age on. The probate inventories of Bruges show how lower social classes equally engaged in this new material culture, investing in clothes that conformed to the current fashion in cut and colour. This evolution was not limited to the public sphere, but also entered the domain of private houses. Whereas early inventories list mainly rooms with multiple functions, later ones contain a multitude of specialised rooms with their own specific furniture and decorations. Guests would be entertained in a formal sitting or dining room in which several objects, such as paintings, conveyed the identity of the family. A different, more intimate dining room, or the kitchen in poorer households, was used by the family to consume their daily meals. Increased specialisation and decoration of the living spaces required the purchase of more consumer goods.[261] In this sense, the rise in the desired level on income from labour must be primarily interpreted as a desire to attain new consumer levels.

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[259] See for example: Howell, *Commerce Before Capitalism*.

[260] Isis Sturtewagen and Bruno Blondé, "Playing by the Rules? Dressing without Sumptuary Laws in the Low Countries from the Fourteenth to the Eighteenth Century*," in *The Right to Dress: Sumptuary Laws in a Global Perspective, c.1200–1800*, ed. Giorgio Riello and Ulinka Rublack (Cambridge: Cambridge University Press, 2019); Frederik Buylaert, Wim De Clercq, and Jan Dumolyn, "Sumptuary legislation, material culture and the semiotics of 'vivre noblement' in the county of Flanders (14th–16th centuries)," *Social History* 36, no. 4 (2011).

[261] Stabel, *A Capital of Fashion. Guilds and Economic Change in Late Medieval Bruges*; Inneke Baatsen, "A bittersweet symphony: the social recipe of dining culture in late medieval and early modern Bruges (1438-1600)" (PhD thesis, University of Antwerp, 2016); Julie De Groot, "At home in Renaissance Bruges: material and domestic culture in a city in decline, 1438-1600" (ibid.2017); Isis Sturtewagen, "All together respectably dressed: fashion and clothing in Bruges during the fifteenth and sixteenth centuries" (Phd thesis, ibid.2016).

Once the carpenters of the water board had tasted from the new lifestyle, they wanted more. By the beginning of the sixteenth century, the desired level on income from labour had once again increased: from 4.5 to 6 annual baskets. Again, improvements in the material living standard seems to be the most plausible explanation. Household composition and taxation still evolved in the same direction. The fiscal burden from levies imposed by the central government had increased more rapidly than between the first two periods, but excises imposed by the local authorities seem to have risen less rapidly. If the data for Aalst are representative for the whole County, the rise in income from labour after taxes in the sixteenth century is actually greater than the rise in income from labour before taxes.[262] Moreover, the rate of return from capital increased rapidly in this period, which would predict a decline in the desired level of income from labour and not a rise if investments remained stable or increased. Finally, the discussed evolutions in the probate inventories of Bruges seemed to have accelerated and crystalised in the last quarter of the fifteenth century.

While the rise in the desired level of income from labour is less steep compared to the gains in the previous period (+33.33% versus 80%), the trend in employment rates is much more remarkable. After the Black Death, labourers became in theory more industrious than before, substituting work for leisure at a comparatively lower level, but the massive gains in remuneration allowed them to toil fewer and still earn higher annual wages days in practice (see Figure 2.1 and 2.3). The lucky carpenters who survived the recurrent plague waves thus enjoyed the best of two worlds: more leisure and more consumption. Their colleagues of the late fifteenth and sixteenth century faced a far more difficult choice in regards to their labour time. After a century and half, the Golden Age for labour was finally and rapidly coming to an end. Real daily wages were in a free fall, losing much of their value (-37%) between 1500 and 1550. The craftsmen of the water board could have opted to keep their number of days worked steady and revert to lower consumption levels, reminiscent of those in the early fourteenth century. Instead, their employment levels reached unprecedented heights, surpassing the maximum theoretical work year of 275 days on a regular basis (see Table 2.1). Only one of the top ten most assiduous carpenters in our database did not toil in the sixteenth century: Boudekin smet, who worked 281 days in the exceptional year of the Black Death. Apparently, the new consumer culture had taken root over the past century and now constituted a cornerstone in the identity of the skilled craftsmen. Through hard work they

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[262] Based on table 9 of Munro, "The Usury Doctrine and Urban Public Finances in Late-Medieval Flanders: Annuities, Excise Taxes, and Income Transfers from the Poor to the Rich." We deducted 21.6 days from the employment rates of the period 1350-1449 and 33.28 days from those of the period 1450-1550 in order to calculate the annual income after indirect taxes. The average desired level now increased from 4.14 to 5.7 annual baskets (+38.4%) compared to 4.5 and 6 annual baskets before indirect taxes (+33.33%).

were able to attain consumer levels that set them apart from lower classes, carving their place between the traditional medieval orders of the nobility and the common worker. Once they had achieved this high material living standard and its accompanying social status, they were reluctant to lose it, even if it meant working more days than ever before. Such an evolution is in line with the historiographical narrative of a bourgeoisie ideology, focused on hard work for the greater good of the community and a refined lifestyle, that started to develop in the fourteenth century and really crystalised in the last quarter of the fifteenth century.[263]

The observation of falling daily wages but higher annual incomes in the pursuit to acquire consumer goods can also be connected to a second historiographical tradition, that of the industrious revolution (see introduction). The story of the carpenters of the water board of Blankenberge almost reads like a textbook example of more effective use of labour time in search of profit maximisation. The only problem is that they predate the evolutions described by Jan de Vries and others by at least a century.[264] The roots can already be found in our second period (1349-1449) when craftsmen adopted a higher work regime, albeit this tendency remained obscured by relatively low absolute levels of employment. It is therefore unfortunate that we do not possess data for the middle of the fifteenth century, but the ever higher desired levels of income from labour in our last period suggests that the prolongation of the work year was a continuous process. Contrary to the often-cited criticism against an industrious revolution in the long eighteenth century, that the increased labour time was the result of coercion of labourers who had to work harder to make ends meet, the carpenters of the water board had no such incentive for the majority of the time observed.[265] Wage rates remained favourable until 1520. In this sense, the changes in the leisure preference and the high employment rates of the craftsmen in Blankenberge, especially at the beginning of the sixteenth century, can be seen as a purer embodiment of an industrious revolution.

What then is the impact of industriousness on our idea of a Golden Age for labour after the Black Death? Figure 2.3 compares the evolution of the theoretical income based on daily wage rates and the actual income we observed for the most assiduous worker among the fully employed carpenters in the water board. By taking the maximum employment rate per year,

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[263]See for example: Herman Pleij, *De sneeuwpoppen van 1511. Literatuur en stadscultuur tussen middeleeuwen en moderne tijd* (Amsterdam: Meulenhoff, 1988).

[264] J. de Vries, *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present* (Cambridge University Press, 2008); Hans-Joachim Voth, "The Longest Years: New Estimates of Labor Input in England, 1760-1830," *The Journal of Economic History* 61, no. 4 (2001); Allen and Weisdorf, "Was there an 'industrious revolution'."

[265] de Vries, *The Industrious Revolution*, 113-21.

FIGURE 2.3 COMPARISON BETWEEN THE THEORETICAL MAXIMUM AND ACTUAL WAGE INCOME OF CARPENTERS IN THE WATER BOARD OF BLANKENBERGE (N=226)
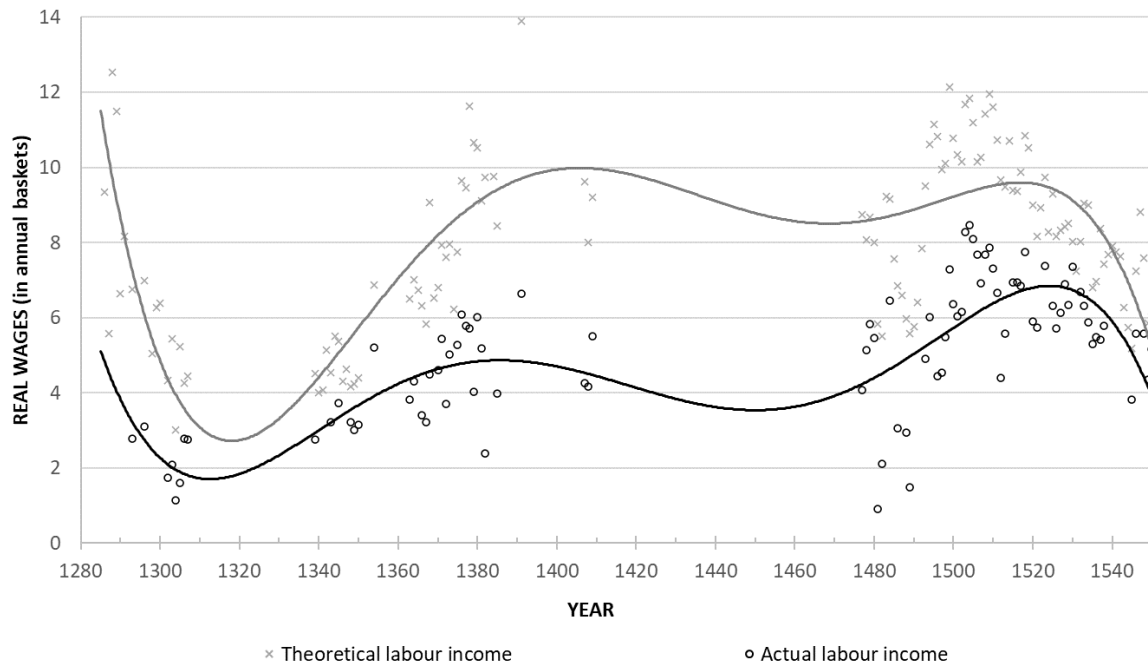
Notes: theoretical labour income is based on the daily wage multiplied by 365 days. Actual labour income is calculated by multiplying the daily rate by the maximum employment rates observed per year for the fully employed carpenters in the water board of Blankenberge. Both results are deflated by the cost of the consumption baskets.
Sources: See Appendix 1 for real wages and Appendix 2 for the work year.

we establish the minimal difference between the two series. Ultimately, the results would be very similar if we had opted for any of our other sample groups, like the head of the carpenters. Taking into account the variable length of the work year fundamentally questions the trends we established in the first chapter. The period after the Black Death glitters far less because of the simultaneous reduction in labour time. Surprisingly, the highest levels are now obtained between 1490 and 1530. Whereas before, only the last decade of the fifteenth century was but a last, short Indian summer for real daily wages, the very high employment rates lift this whole period up to become the apotheosis of a prolonged process of steadily increasing living standards. The mortality crises of the fourteenth century did not skyrocket wages to all-time heights in a matter of decades. Certainly, the gains are still impressive, but they are more in line with what we would expect based on the evolution of GDP per capita.[266] Mortality crises also fail to explain the late peak in the series considering that population figures were increasing for much of the fifteenth century in the County of Flanders and

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[266] See for example the comparison between daily wages and GDP in England in Humphries and Weisdorf, "Unreal Wages?," figure 2.

plague waves became far less deadly or disruptive (see general introduction). Even more so than in Chapter One, a direct relationship between demography and labour income is thus questionable, at least for the carpenters of the water board.

In addition to the relative changes over time, the absolute levels of living standards are fundamentally different as well. For the majority of the period, they only amount to circa half the value we would expect from daily wages. Between 1350 and 1449, a skilled labourer could buy on average 8.66 consumption baskets with his daily remuneration, yet the carpenters of the water board could only purchase 4.64 baskets if we take into account the length of the work year. These lower income levels still indicate that the Golden Age for labour was a prosperous period in history, but it no longer stands out as a sore thumb in the long-term evolution of wages. The notion that late medieval living standards were comparable to those of the nineteenth century, when industrialisation made food more cheaply available than ever, has always puzzled historians. Perhaps our downward revision can offer them some solace. It is important to stress that this revision only applies to the skilled building labourers of the water board and possibly the larger area around Bruges (see 2.3 Hire and Fire). We do not have the information for unskilled workers yet, but they certainly had far less freedom to choose their labour time. Since the upper bound of living standards is limited by the number of hours in a day and the lower bound is equal to the cost of the bare minimum to survive, lower remuneration severely narrowed the scope of their leisure preference.

To conclude our discussion on the supply of labour, it is useful to check and compare our results with those reported in the secondary literature. Figure 2.4 depicts evolutions reported for Antwerp, Northern Italy, and England. The first two concern the areas under investigation in this thesis and the last area is chosen because its methodology is currently the most popular in historiography (see 2.1 Pick a number). As we have seen, Herman Van Der Wee devised a way to adjust employment rates to the fluctuating demand for building labourers in the city of Antwerp. However clever his methodology, we were rather sceptical about the representativeness of his results for actual employment rates. Comparing his data with the other trendlines suggests that his omission of the leisure preference of labourers resulted in a too stable series. Although building craftsmen in Antwerp might have been less responsive to changes in remuneration relative to the carpenters of the water board, a standard deviation of ten days over an entire century is hardly believable. The average level of employment for the entire period is however very similar to the one we found for Blankenberge (217 days according to Van Der Wee compared to 221 days in the water board).

FIGURE 2.4 COMPARISON BETWEEN THE EMPLOYMENT RATES OF THE WATER BOARD AND
THOSE REPORTED IN SECONDARY LITERATURE (DECENNIAL AVERAGES)
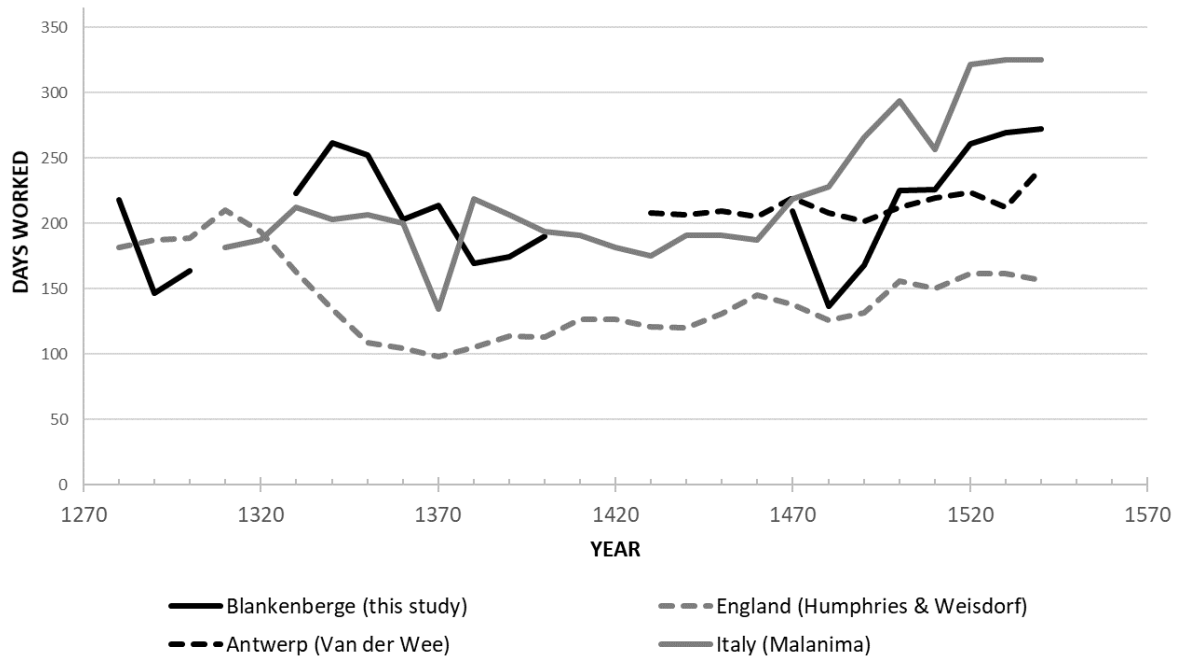
Notes: For Blankenberge, we plotted the decennial averages of the head of the carpenters. For Italy, we assumed 10-hours
    workdays.
Sources: For Blankenberge, see Appendix 2. For England, see Humphries, Jane, and Jacob Weisdorf. *"Unreal Wages?"*,
    online appendix table A2. For Antwerp, see Van der Wee, Herman. *The Growth of the Antwerp Market*. Vol. 2,
    50-51 and 540-544. For Italy, see Malanima, Paolo. *"Wages, Productivity and Working Time."*, 168.

Greater discrepancies exist between our series and those of Humphries and Weisdorf for
England. With the exception of the earliest decades, their estimates are significantly lower (on
average 37% lower for the period 1330-1550 with a maximum of 57% lower in the 1350's). It
is certainly possible that English farm labourers exhibited a greater preference for leisure than
the craftsmen of Blankenberge, but the level of employment seems too extreme in
comparison to all other series. This further enhances our earlier stated reservations about the
use of a Laspeyres index as a proxy for real consumption levels. In addition, there is something
odd with the relative evolution of labour time in the first half of the fourteenth century.
Contrary to what we would expect based on all historiographical evidence, the length of the
work year started to decrease rapidly from 1320 onwards, three decades before the Black
Death and the accompanying revaluation of labour. In fact, the reduction in employment
rates is greater before the mortality crisis than afterwards (-36.2% between 1320 and 1349
versus -27.3 % between 1350 and 1379). How would this be possible in rural England, the

most often-cited archetype of a society caught in a Malthusian deadlock?[267] Land had become scarce, pushing the extensive margins of cultivation ever outward, while population growth provided an ever larger (near) landless workforce. Surely, one would predict the length of the work year then to rise instead of decline, just as the other series in Figure 2.4 seem to indicate. Admittedly, there are some signs of population decline and a retreat of the cultivated area in some regions after the Great Famine of 1315-17.[268] However, the rate and the scale of this process are too limited to warrant such a rapid and significant decline in the working year in comparison to the impact of the Black Death. According to us, the explanation needs to be sought in the methodology of Humphries and Weisdorf. In a time of high population pressure, high food prices, and unfolding agricultural crisis, the prospect of fixed employment and secured subsistence must have been so attractive that labourers were willing to accept lower payments than what a casual worker could earn in the same number of days. As a result, calculating the length of the work year by dividing annual wages of contracted farm servants by daily wages of casual labourers, probably underestimates actual employment rates in this period. The low figures in the period before the Black Death are therefore a reflection of the deteriorating state of the English economy and the difficulties in finding employment at reasonable pay.

A last comparison can be made with the series for Northern Italy. They are computed by Paolo Malanima based on GDP values. In other words, the length of the working year represents the input of all labourers needed to generate the observed production in any given year. With the exception of some short-term differences, such as the turbulent 1480's in the County of Flanders, his estimates fit our own quite nicely, both in level and evolution. While the similarities give some credibility to both series, it would go too far to compare levels of industriousness in Flanders and Italy and its implication for the debate on the Little Divergence (see Chapter One) given the widely differing methodology. Instead, we feel a regional approach is more fruitful. We cannot simply generalise a single series and apply it to the level of the entire county without consideration. We need to test if our data can be representative for a larger area, for the economic region in which the water board was embedded.

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[267] For example: M.M. Postan, *The Medieval Economy and Society: An Economic History of Britain, 1100-1500* (University of California Press, 1973).

[268] Alan Baker, "Evidence in the 'Nonarum Inquisitiones' of Contracting Arable Lands in England during the Early Fourteenth Century," *The Economic History Review* 19, no. 3 (1966).

2.3 Hire or fire. The Demand for building labourers

According to our multivariate regression for the labour time of carpenters in the water board, the length of the work year was not only determined by the desired level of income, i.e. the supply side, but equally by the expenses made on carpentry, i.e. the demand side (see Appendix 2.1). While we don't have additional sources to retrace actual employment rates for different institutions in the building sector in the larger area, we do have some information on building activity. Considering that real daily wages were very similar in Coastal Flanders (see Chapter One), the question of representativeness largely depends on this demand side of the equation. How exceptional was the case of the fully employed carpenters? If fluctuations of building activity followed the same trends as those in the water board, there is a solid chance that employment rates were comparable or at least followed a similar trajectory. To this end, we will focus foremost on the building industry in Bruges.

The Flemish metropole was situated right at the border of the water board, just thirteen kilometres away from Blankenberge, which was the hometown for most carpenters of the water board. With a population between 35.000 and 50.000 inhabitants, it accommodated a significant share of the population of Coastal Flanders in a limited space (ca. 17%) and an even larger share of the urban population (ca. 46%), which included the majority of skilled craftsmen.[269] Bruges therefore boosted the largest private housing market in the area: from simple dwellings to luxurious palaces for princes and merchants, they all needed to be constructed and maintained. Likewise, its many commercial and industrial activities required an extensive infrastructure, such as paved roads, bridges, guild houses, market halls, warehouses, or shops. In the fragmented political landscape of late medieval Flanders, Bruges was one of the most influential players. This political power needed to be projected in its architecture. Robust city walls, a towering belfry and an intrinsically decorated town hall served as clear markers to any visitor. Aside from these secular buildings, the skyline of the metropole was dotted by more devout towers. Churches, abbeys, and hospitals joined the myriad of urban buildings. Unsurprisingly, building labourers from all over the County and even beyond were attracted to this enormous market. Those that needed some construction to be done conversely came to the city in search for the right craftsmen.[270]

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[269] Prevenier, "La démographie des villes."

[270] Etienne Scholliers, "Lonen te Brugge en het Brugse Vrije," in *Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, ed. C. Verlinden (Bruges: De Tempel, 1965), 89-90.

FIGURE 2.5 Expenses on building labour by the water board of Blankenberge and the city of Bruges
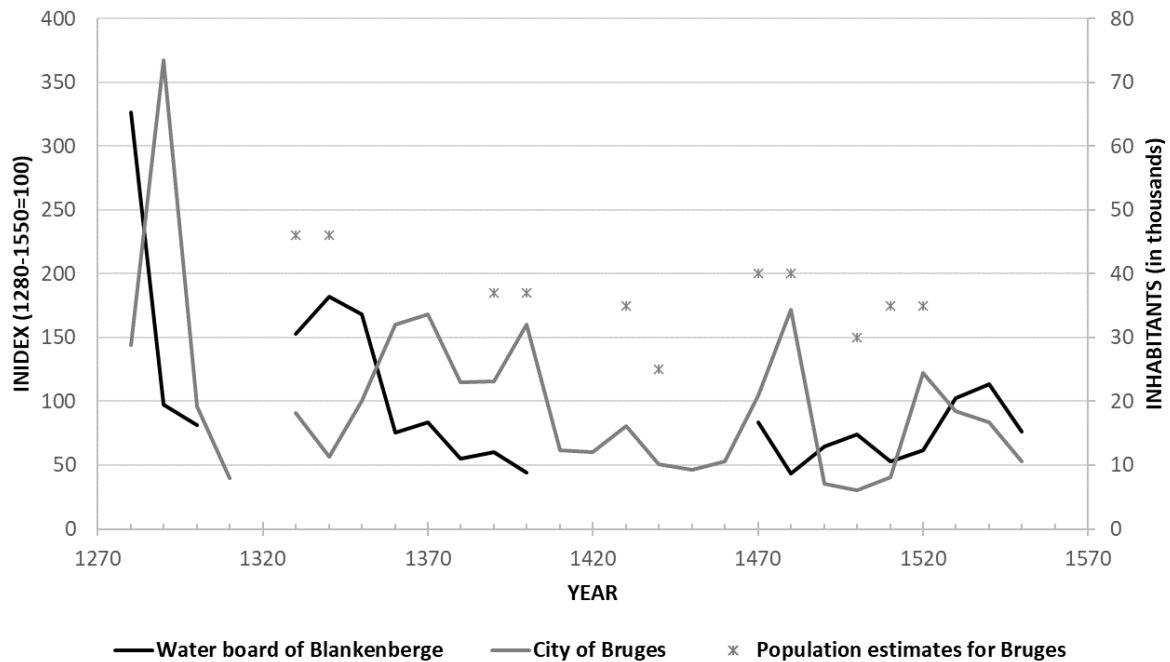
Notes: Expenses for the water board refers to skilled carpenters only, whereas those for Bruges pertain to all building labour cost. All expenses have been deflated by the daily wage rate of a skilled carpenter found in the same sources.

Sources: for expenses, see appendix 2.4. For population estimates Brown, A., and J. Dumolyn. *Medieval Bruges: C. 850–1550*. Cambridge University Press, 2018.

Considering the large concentration of buildings and building labourers, the ebbs and flows of construction activity within Bruges are an important indicator for the general evolution of demand in the wider region of Coastal Flanders. Since no all-encompassing source exist to retrace the demand for labour in the metropole, we propose three complementing proxies: the expenses in city accounts, dendrochronological data of surviving roofs, and the occupational structure of guilds and new citizens.

For the water board of Blankenberge, we have used the annual amount spent on building labourers as a proxy for demand. The city accounts of Bruges offer us an opportunity to compare an almost identical dataset of information. Until 1460, they list the different tasks performed together with the cost of the materials and the cost of labour per year. Thereafter, the records are separated from the general city accounts and only a summary of the total expenses is given. Unfortunately, the vast majority of those detailed accounts on public works have not survived, but a simple linear regression revealed a high correlation between the total expenses on construction and those specific to the building labourers (R^2=0.929, $p < 0.001$).

Missing values were consequently calculated based on the assumed relationship.[271] Figure 2.5 shows the resulting index numbers of this exercise together with the data for the water board of Blankenberge (for exact figures see Appendix 2.4). Remarkably, both series exhibit the same general trends over the long run. The demand for labourers was at its absolute peak, after deflation, in the late thirteenth century. At this time, the two institutions were probably one of, if not the biggest employers in the whole area, spending exuberant amounts of money on large projects. Bruges witnessed the construction of its second ramparts, stretching almost seven kilometres long and boosting nine stone gates, and its famous *Nieuwe Hallen* (new market halls), a massive building housing a covered dock and the stalls of money changers.[272] In the water board, more than twenty different carpenters continuously worked on the reinforcement of the sluice.[273] After 1300, building activity started to decrease rapidly, especially after the Black Death. It seems to have stabilised at low levels in the fifteenth century until a final phase of growth occurred between 1480 and 1540. This pattern largely followed the demographic evolution (see asterixis in Figure 2.5). The steep drop in the demand for labour is therefore not as dramatic as it might first look. Population losses due to recurrent plague waves do not only affect the demand side, they also have an impact on the supply side. Less work was distributed among less labourers. In Bruges, the average decline in the demand between 1280-1349 and 1350-1450 was almost identical than the average decline in population over the same period (respectively, -25.7% and -24.3%). In the water board of Blankenberge, the rate of decrease in building activity was higher, which suggests that either the demand for labour somewhat diminished or that the demographic evolution in the countryside was different from the metropole.

While the urban government of Bruges was a major employer in the city, its evolutions only represent a fraction of the total building activity. A recent study by Kristof Haneca, Vincent Debonne and Patrick Hoffsummer offers us a unique opportunity to gain better insight in the general level. By determining the fell dates of wood samples from surviving, historical buildings, they were able to reconstruct a chronology of building activity in Bruges.[274] The evolutions found in Figure 2.6 are comparable to the ones described earlier. Again, the demand for building labour peaked in the late thirteenth century before setting in a

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[271] $y = 0.7383x - 10,965$

[272] J. Dumolyn et al., "The Urban Landscape II: c.1275–c.1500," in *Medieval Bruges: c. 850–1550* ed. A. Brown and J. Dumolyn (Cambridge: Cambridge University Press, 2018).

[273] Maurits Gysseling, "Corpus Gysseling," (Instituut voor Nederlandse taal, 2013), nrs. 664, 1230, 329, 601, 669.

[274] Kristof Haneca, Vincent Debonne, and Patrick Hoffsummer, "The ups and downs of the building trade in a medieval city: Tree-ring data as proxies for economic, social and demographic dynamics in Bruges (c. 1200–1500)," *Dendrochronologia* 64 (2020).

prolonged decline. This trend accelerated in the second half of the fourteenth century. The level remains stable for much of the fifteenth century with a minor upswing at the end. Notwithstanding these important similarities, there are some remarks to be made. First, religious institutions appear more resilient to the downward trend after the Black Death compared to the other sample groups as building activity remained relatively high until 1400. According to the Haneca et al., one possible explanation is the increased need for divine comfort and protection in times of crisis. Indeed, the period after the Black Death is characterised by religious fervour. Shocked by the extent of the mortality crises, the disease was seen as a punishment of God and flagellant movements swept across the County.[275] In Northern Italy, the number of pious bequests skyrocketed, which resulted in additional revenue for the religious institutions. The wealthier testators demanded the construction of chapels, sometimes multiple, to remember and pray for their soul after death.[276] In this context, building activity relative to population may have increased in Bruges in the second half of the fourteenth century. Overall, however, religious building only constituted a minor part of the industry. A second remark is that the methodology employed by Haneca et al. only determines the felling date of the wood samples and not the actual date of its application in constructions. As a consequence, labour stemming from the common practice of recycling older materials in new projects is underestimated. [277] This is especially relevant from the second half of the fourteenth century on when increasing real wages and a developing consumer culture caused radical changes in how houses were decorated and divided in rooms (see 2.2 Lazy or industrious?). Moreover, plague killed people but left brick and wood unaffected. After the Black Death, the number of houses per capita suddenly increased, so there was little need to construct entire new buildings with newly cut wood. A third and final remark pertains to the survival rate of private houses. Whereas public and religious buildings have a relatively high chance of being preserved due to their functions and more sturdy building materials, houses are regularly demolished or renovated extensively to accommodate

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[275] Ria Jansen-Sieben, "Ooggetuigen en flagellanten anno 1349," in *De pest in de Nederlanden. Medisch-historische beschouwingen 650 jaar na de Zwarte Dood.* , ed. Jozef Lemli, ierde symposium geschiedenis der geneeskundige wetenschappen (Brussel: Koninklijke Academie voor Geneeskunde van België, 1999); Gavin Hammel, "Revolutionary Flagellants? Clerical Perceptions of Flagellant Brotherhoods in Late Medieval Flanders and Italy," in *Faith's Boundaries: Laity and Clergy in Early Modern Confraternities*, ed. Nicholas Terpstra, Adriano Prosperi, and Stefania Pastore (Turnhout: Brepols, 2012).

[276] S.K. Cohn, *The Cult of Remembrance and the Black Death: Six Renaissance Cities in Central Italy* (Johns Hopkins University Press, 1997).

[277] The reuse of materials is accounted for by the authors through the use of series of samples. However, the amount of labour to tear down and reinstall older materials is not reflected in the summed probability distribution of fell dates.

FIGURE 2.6 DENDROCHRONOLOGICAL DISTRIBUTION OF WOOD SAMPLES FROM MEDIEVAL BUILDINGS IN BRUGES
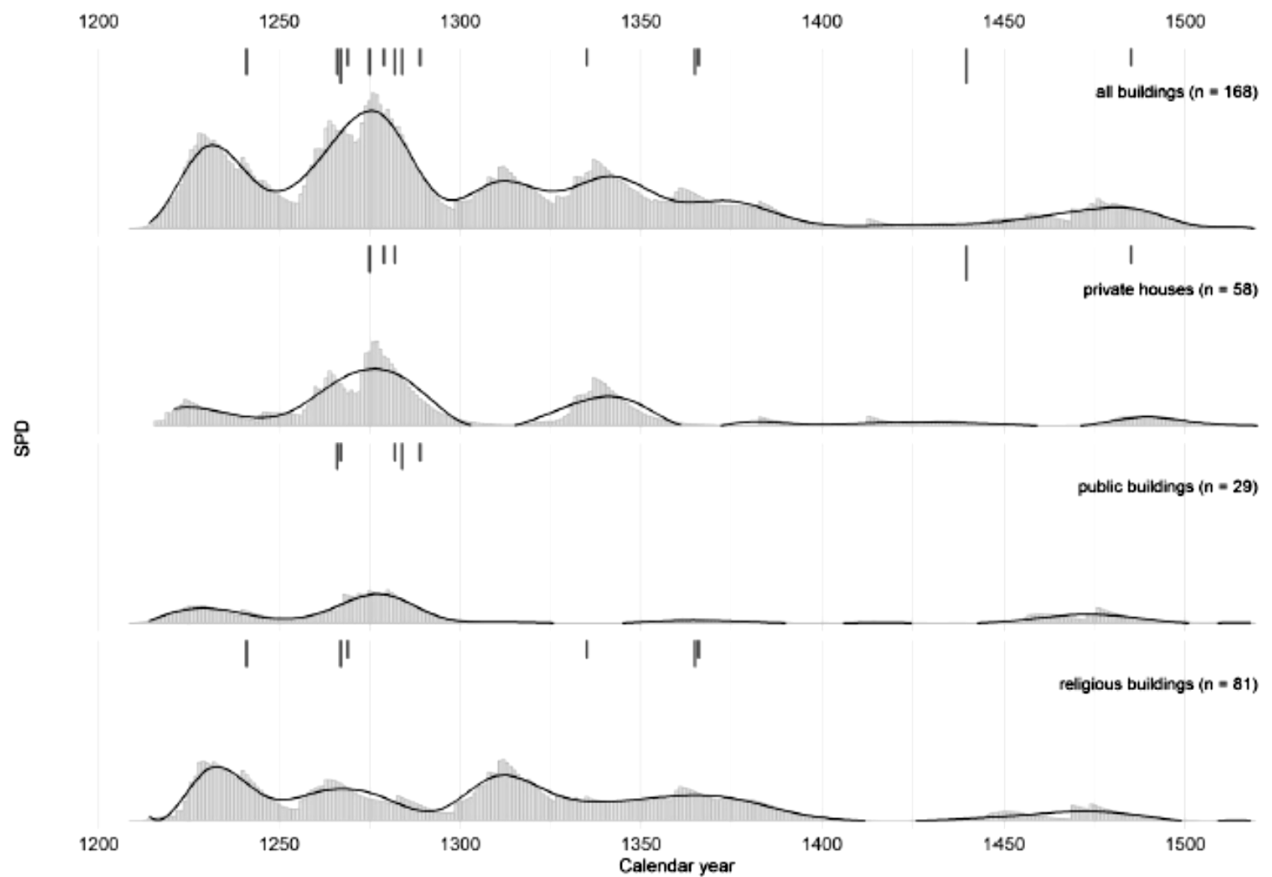
Notes: SPD stands for the summed probability distribution of the felling dates. The higher its value, the more likely it is that a higher number of buildings were constructed in a given year.

Sources: Haneca et al., "The Ups and Downs of the Building Trade in a Medieval City," Dendrochronologia 64 (2020), figure 8.

changes in lifestyle or in demography. The houses included in the study are therefore exceptional and most probably belonged to the wealthier citizens of Bruges, who did not spare expenses on materials. The location of the houses certainly points in that direction considering that they were clustered within the first rampart, the most expensive area of the city. This social bias may obscure trends in the larger housing market. The Golden Age for labour favoured lower and middle classes above the elites, who, as an employer and rentier, probably saw their income reduced (see also next chapters). As such, it is possible that the demand for building labourers declined less than the figures convey.

As a final robustness check, we assess the attractiveness of the building market through the professional titles of incoming citizens and the relative importance of the construction guilds in the total economy. Any skilled craftsmen looking to work in the building industry of

Bruges needed to be part of a guild. By the fifteenth century, plumbers, masons, plasterers, smiths, thatchers, tilers, carpenters, and sawyers were organised in a guild that supervised and controlled all related professional activities in the city. Based on their numerical strength, but also their financial and political power, these institutions were required to participate in the urban militia. Theoretical draft lists (*vouden*) determined how many men each guild had to provide in times of war and were regularly updated to match the ever-changing balance. *Vouden* or effective militia lists for different periods exist and have been used in earlier studies to assess the evolving occupational structure in Bruges.[278] Unfortunately, some authors only reported the occupational structure per sector based on different grouping criteria, which makes a comparison across time difficult. Moreover, some figures simply don't add up. For example, the tables provided by Jan Dumolyn omit the data for four guilds (shippers, fruit traders, candle makers and furriers). Given all these discrepancies, we have decided to reconsult the original source materials where necessary and included the (revised) tables with a consistent categorisation in appendix 2.5. We have also added the occupational distribution according to a poll tax of 1394-96, as reported by Ingrid De Meyer, and a hitherto unreported repartition table.[279] The last source dates to 1297, five years before the earliest known militia list. A delegation of Bruges citizens met with Philip IV of France in the castle of Ingelmunster. Afraid for the devastating consequences of an ongoing war between the count and the king, they pleaded the latter to spare their city. As a token of their loyalty, the citizens gifted Philip 1,000 pounds parisis.[280] The enormous amount of money, equivalent of ca. 7,000 days of skilled labour, was repartitioned among the different guilds in accordance with the *voud*. Together, these lists give us an impression of the relative importance of the building industry, but data is severely lacking for the fifteenth century. To remedy this gap, we explored the professional titles of new citizens who were recorded in the *poorterboeken*.[281]

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[278] W. Prevenier, "Bevolkingscijfers en professionele strukturen der bevolking van Gent en Brugge in de 14de eeuw," in *Album Charles Verlinden* (Gent: Belgisch centrum voor landelijke geschiedenis, 1975); J.F. Verbruggen, "Het gemeenteleger van Brugge van 1338 tot 1340 en de Namen van de weerbare Mannen," *Revue du Nord* 45, no. 178 (1963); "De organisatie van de militie te Brugge in de XIVe eeuw," *Annales de la Société d'Emulation de Bruges* 87 (1950); A. Brown and J. Dumolyn, *Medieval Bruges: c. 850–1550* (Cambridge University Press, 2018); Jan Dumolyn, "Population et structures professionnelles à Bruges aux XIVe et XVe siècles," *Revue du Nord* 91, no. 329 (1999); Sosson, *Lest travaux publics de la ville de Bruges. XIVe-XVe siècles.*

[279] Ingrid De Meyer, "De sociale strukturen te Brugge in de 14de eeuw," in *Studiën betreffende de sociale strukturen te Brugge, Kortrijk en Gent in de 14e en 15e eeuw*, ed. W. P. Blockmans, et al. (Heule: UGA, 1971).

[280] "Item a domino nostro rege Francorum ex dono ab ipso ville facto per manus comitis Sancti Pauli 1000 LB" A. Wyffels, Jos De Smet, and A. Vandewalle, *De rekeningen van de stad Brugge, 1280-1319*, 2 vols. (Brussels: Paleis der Academiën, 1965-97), vol. 1, 514.

[281] I am grateful to Peter Stabel for providing access to his database, containing the records found in R.A. Parmentier, *Indices op de Brugsche poorterboeken* (Brugge: Desclée De Brouwer, 1938); A. Jamees, *Brugse Poorters. Opgetekend uit de Stadsrekeningen en ingeleid door A. Jamees. Assistent bij het Rijksarchief te Antwerpen* (Hamdzame: Uitgaven Familia et

FIGURE 2.7 THE RELATIVE IMPORTANCE OF THE BUILDING INDUSTRY IN BRUGES
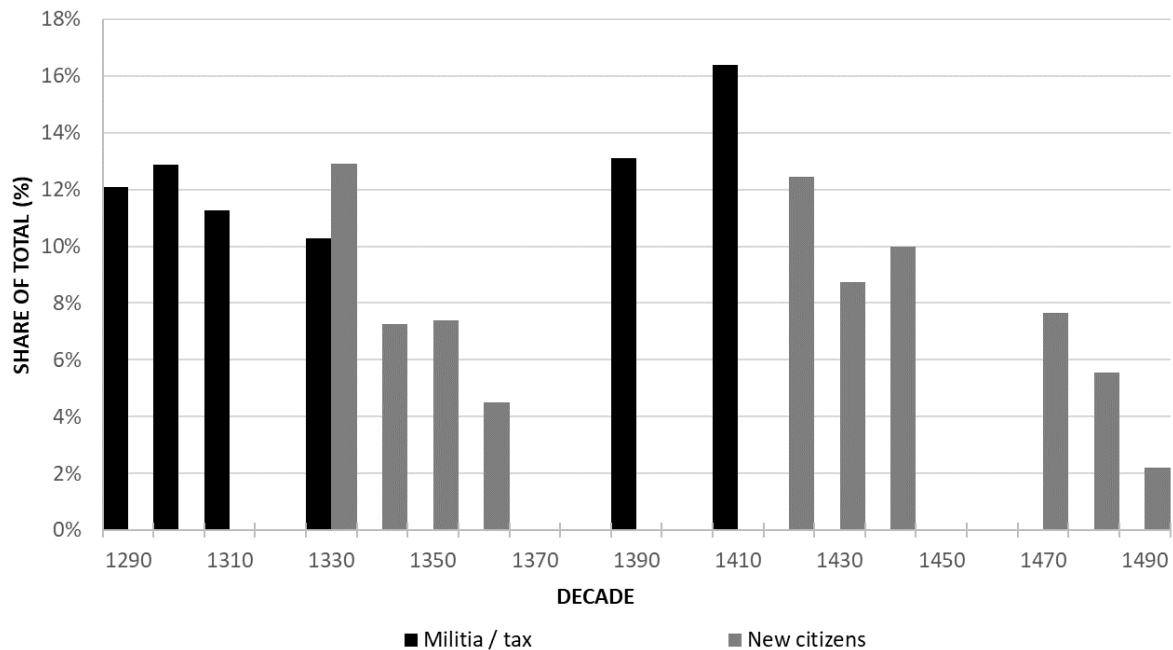
Sources: see Appendix 2.5 and 2.6.

Since anyone aspiring to become a master in one of the building related guilds was required to be a citizen, the two types of sources are closely related but not identical. Citizenship was inheritable and so the large number of masters' children are not recorded.[282] Given that the registration of professional titles in the *poorterboeken* was not required by law, the data is far from complete. For some decades, we can identify the occupation for less than two per cent of the recorded individuals. For other decades, the lists are incomplete and hence not representative. We have therefore restricted our selection of the *poortersboeken* to those decades in which the total number of new citizens with a professional title was greater than 117.[283] The results of this exercise together with the data of the militia lists are reported in Figure 2.7.

Patria, 1974). Again, this data has been used in earlier studies, including many of the earlier mentioned literature (see footnote 278).

[282] M. Boone and Peter Stabel, "New burghers in the late medieval towns of Flanders and Brabant: conditions of entry, rules and reality," in *Neubürger im späten Mittelalter: Migration und Austausch in der Städtelandschaft des alten Reiches (1250-1550)*, ed. Rainer Christoph Schwinges, Zeitschrift für historische Forschung. Beihefte (Berlin: Duncker und Humblot, 2002).

[283] Based on a 95% confidence interval for reporting one of our twelve sectors, calculated according to Cochran's formula.

Again, the building industry of Bruges seems to have lost its appeal from the late thirteenth century onwards. Craftsmen like masons and carpenters were well represented in the militia lists until 1300 but show a downward trend thereafter. The registration of new citizens reconfirms that the Black Death enhanced this evolution. The sudden rise in houses per capita and the lack of new public building projects (cfr. Supra), probably made Bruges a less attractive market for migrating building labourers. However, the industry had regained its vigour by the end of the fourteenth century and levels remained relatively high until 1470. Given that absolute levels of building activity in the public and top-end segment of the private market were at their all-time low, this trend seems to confirm our earlier formulated hypothesis of an increased demand by middling and lower groups for construction workers, which remained obscured in previous sources. The simultaneous increase in the relative importance of professional titles related to the production of consumer goods corroborates this idea. Specialised craftsmen producing fashionable goods, especially finished garments, gradually replaced the fullers and weavers, who were characterised by a great inequality between a mass of proletarianised workers and a select elite of entrepreneurs, as the dominant occupational group by 1400. According to Peter Stabel, it was precisely this social transformation, the emergence of a sizeable urban middling group, that paved the way for the economic success of Bruges in the fifteenth century.[284] The relative importance of building labourers in the *poorterboeken* started to decline rapidly from the 1480's on. Apparently, the earlier observed increases in public spending and the number of dated wood samples are not mirrored by our data for new citizens. An explanation has to be sought in the exceptional turbulent episode of the Flemish revolt against Maximilian of Austria (1482-1492). In these uncertain times, when the fear of a siege loomed ever larger and economic blockades hindered trade and movement regularly, few inhabitants would have dared to invest extensively in urban real estate and few migrants would have chosen to pay the cost of citizenship and guild membership in a stagnating market of a revolting city. In addition, population figures declined by a quarter (see Figure 2.5), which further depressed the demand until they recovered somewhat in the sixteenth century. Public expenses witnessed their most important upswing between 1510 and 1540. Unfortunately, our data for new citizens stops in 1496, making it impossible to assess if the significant decline in the relative importance of building labourers was only temporary due to political turmoil.

So, what do all these proxies imply for the representativeness of our data for the water board? All series seem to agree that the demand for labour declined significantly in the first half of the fourteenth century. Whereas opportunities were abundant in the late thirteenth century,

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[284] Stabel, *A Capital of Fashion. Guilds and Economic Change in Late Medieval Bruges*, chapter 2.

more and more construction workers would have encountered difficulties to find full-time employment, especially in a context of high demographic pressure. In this sense, the strategy of the carpenters of the water board to increase the number of days worked in the face of ever declining real wages, was not an evident option for all. The situation did not immediately better after the Black Death when the number of buildings per capita skyrocketed, but gradually the increased purchasing power of middling and lower groups seem to have generated a new and important source of demand, especially in cities where craftsmen are generally concentrated. High demand and high living standards in the fifteenth century probably allowed urban building labourers to reduce their work time as the carpenters of the water board did. Opportunities for employment suffered greatly during the Flemish revolt against Maximilian, but may have witnessed a last growth in the early sixteenth century

In the countryside around Bruges, possible lower levels of employment after the Black Death may have had a different cause. During the fifteenth and sixteenth century, the number of farms diminished greatly as many smallholders became impoverished due to ecological pressure and specific power relations (see Chapter One). Consequently, fewer buildings needed upkeep. Larger landowners absorbed the lands of those poorer households into ever greater holdings, which were leased out. [285] As absentee landownership increased, the incentive for investment and the related demand for construction workers may have declined further. Without reliable sources for building activity on farmsteads, we cannot prove this theory, however. In fact, an opposite evolution is also plausible. The enlargement of the typical farm in Coastal Flanders may have reduced the number of buildings but their size probably increased to accommodate for the bigger scale of agricultural activities. Their construction and upkeep probably required more skilled labour. Moreover, the emergence of a competitive lease market for agricultural land in this area of Flanders was accompanied by a professionalisation of lease farmers, who likely had fewer time or deemed it less cost effective to repair their own buildings compared to the diminishing group of smallholders. Again, sources are missing to retrace such diverging practices, so the question of employment rates in the countryside remains an open question for now.

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[285] Thoen and Soens, "The family or the farm: a Sophie's choice? The late medieval crisis in Flanders."

2.4 Conclusions

From the earliest reconstructions of daily wage series, scholars have stressed the importance of variations in the length of the work year. Without reliable sources on employment rates, these warnings have mainly remained mandatory disclaimers to an ever-growing body of literature on the evolution of living standards. In most recent years, historians have therefore tried to model the number of days worked across time. While their efforts are informative, they are all based on extensive assumptions and accordingly suffer from important shortcomings and limitations. In the absence of better, or, in fact, any data, these statistical exercises risk to become a new orthodoxy. Indeed, new claims about living standards and the Little Divergence based on the uncritical application of the modelled employment rates are already being published.[286] Rather than generalising the trends to the national level and jumping too quickly to far-reaching conclusions, we should check the validity of the models on a smaller scale with attention for the social and economic context in and through which labourers operated. To this end, we explored the case study of the fully employed carpenters of the water board of Blankenberge. The unique source materials allowed us to retrace actual employment rates for a selective group of labourers.

In general, historians believe that late medieval workers exhibited a strong leisure preference, suggesting that the length of the work year was almost entirely determined by the desired level of consumption. The Golden Age for labour was therefore an age of leisure. In contrast, other scholars have pointed out how a new consumer culture and an ideology of hard work developed within certain social groups after the Black Death. Our data for the carpenters of the water board reconciles both historiographical traditions. On the one hand, building craftsmen reduced their labour time in accordance to increasing real wages, especially in the second half of the fourteenth century. The Golden Age for labour is therefore less outspoken in terms of annual labour income for the carpenters of the water board compared to what we would expect based on the daily wages discussed in the previous chapter. On the other hand, the extent of their leisure preference continuously declined over time. In relative terms, the fully employed carpenters toiled ever harder to achieve higher levels of income. Accordingly, an absolute peak in the annual wages can be identified at the end of the fifteenth and beginning of the sixteenth century, a period we usually associate with the definitive end of the Golden Age. The timing severely questions the role of plague and demography as the sole

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[286] Horrell, Humphries, and Weisdorf, "Family Standards of Living Over the Long Run, England 1280–1850."; Rota and Weisdorf, "Italy and the little divergence."

or most important driver of labour income given that population figures were increasing during much of this period.

The evolution of the working year was not caused solely by any changes in the households' expenses or income strategies, but foremost by the desire to purchase consumer goods. In this sense, the tendency of the carpenters towards profit maximisation can be interpreted as an industrious revolution *avant la lettre*. The 'new attachment to things' was part of a larger cultural change found among urban middling groups in Flanders, who increasingly employed fashionable objects to distinguish themselves from other classes. In the city of Bruges, the expression of identity also included the manner in which houses were decorated and divided into specific rooms. As a result, the private demand for building labourers peaked in the fifteenth century, creating a self-reinforcing system of increasing demand and supply until the political turmoil of the revolt against Maximilian of Austria. While the sixteenth century witnessed a short recovery, the flows of trade and the economic centre of the Southern Low Countries was finally shifting towards Antwerp. Real wages in the County started to decline and even though the carpenters of the water board tried their best to counter this trend, working more days than ever before, the economic reality eventually caught up with them and the long and steady rise in real incomes finally came to an end around 1530.
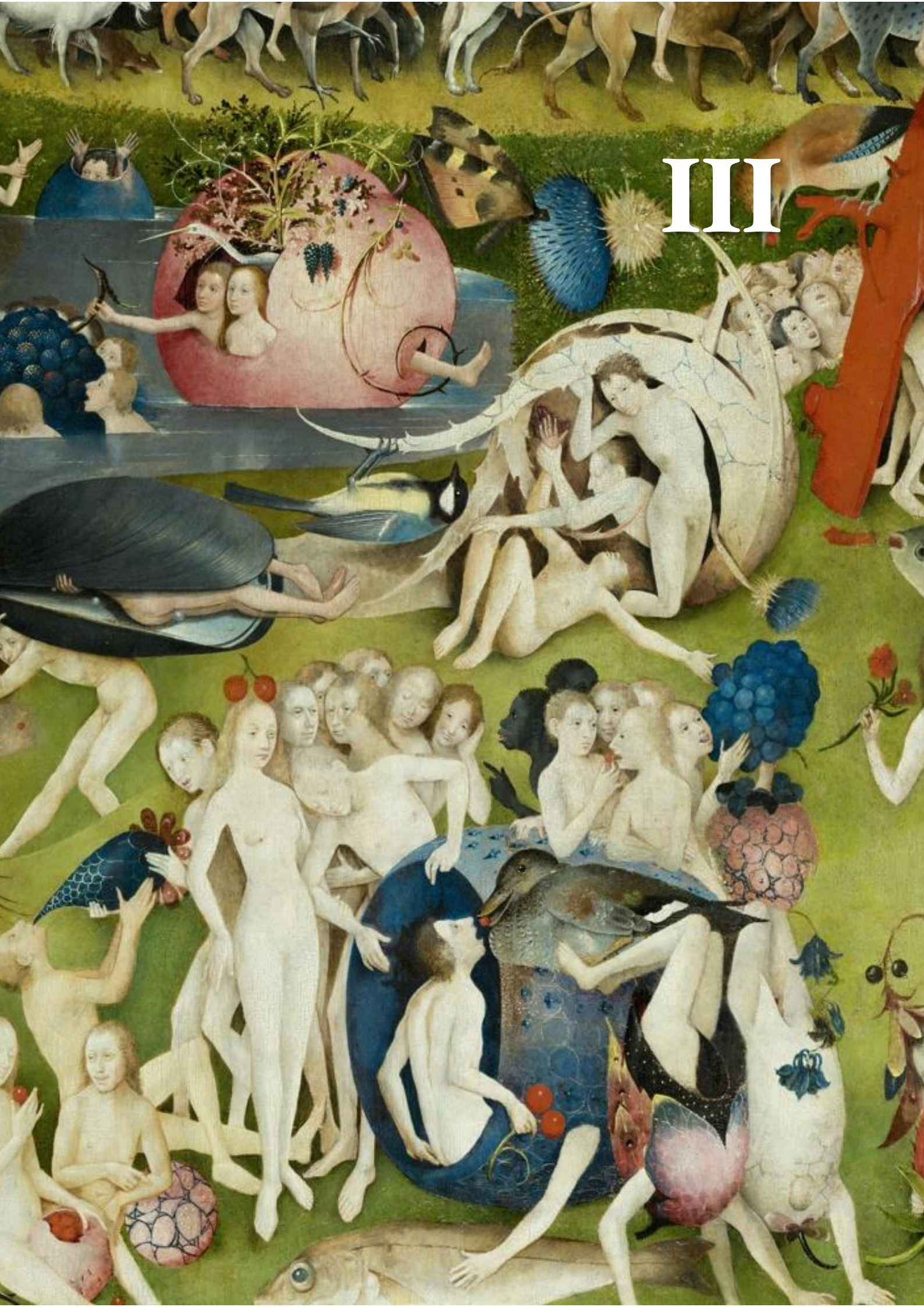
NOT ALL THAT GLITTERS IS GOLD

The evolution of the fiscal position of building labourers

In the previous chapters we have tried to reconstruct the income levels of building labourers over time. Paying careful attention to regional differences, consumption, work time and demand for labour, we were able to assess to what extent wages conformed to the idea of a Golden Age for labour. Far from the pan-European trend often advocated in the historiography, we have seen how experiences could vary greatly between time and space and even between workers on the same construction site, depending on skill level and employment. Yet, despite all these efforts, the picture is far from complete. Before we can extrapolate the ups and downs of wage series to the living standards of labourers or, even more bold, to the living standards of the masses of the population, three remaining uncertainties need to be addressed: first, we need to ascertain that the evolution of the remuneration of the male head is indicative for the remuneration of other members in the household; second, we need to establish that wages either constitute the most important part of income or at least capture its trends adequately; and third, we need to determine if the experience of daily wage labourers is representative for the labour market or society at large.

Concerning the first uncertainty, we have primarily treated the building labourers as single males until now. Although singles could account for an important share of the population, most men lived together with others, such as their wives, children or grandparents. They pooled their income to provide for their needs. Households therefore constitute the most important economic unit when assessing living standards and inequality, but the data we have uncovered for female and child earnings in Chapter One was simply too scarce to retrace any evolution, forcing us to adapt a rather hypothetical household model. We have discussed how historians are still divided about the opportunities for women and children after the Black Death, with one group advocating a clear Golden Age due to labour shortages and another stressing continuous discrimination on the labour market due to increasing patriarchal structures. With little to no information about actual participation rates of women and children, it is thus impossible to determine whether or not the income of these family members followed the trends we have observed for single adult males.

A lack of data also forced us to concentrate attention exclusively on wage income, leaving out alternative or additional sources of revenue. However, as we have seen in the previous chapter, even the fully employed carpenter Adriaan Stier did not rely solely on his occupational skills: he owned some land that he probably leased out and participated in tax-farming. According to classical economic theory, which is the most dominant framework for

interpretating the impact of the Black Death as we have seen in the general introduction, income from these sources was declining relative to the increase in wages. Simply put, plague killed people but not buildings, rents, crops, etc. Labour suddenly became scarce while the stock of land and capital remained relatively unchanged, leading to a significant increase in their availability per capita. As a result, classical theory expects the cost of the former factors of production to rise and the price of the latter two to fall. There is some evidence that this was indeed the case. Based on the ratio between land prices and rents (leases), the return on land declined by more than one third during the late medieval period in both the County of Flanders (from a ratio of 10% in 1251-1300 to 6.4% in 1451-1500) and the Republic of Florence (from 12.9% in 1301-1350 to 7.6% in 1451-1500).[287] Interest rates on loans witnessed a similar trend. For example, rates on non-inheritable annuities declined in the Northern and Southern Low Countries from 10% to 6.25% during the last quarter of the fourteenth and beginning of the fifteenth century.[288] It is important to note that some historians do not fully attribute the just described evolutions to the demographic shock of the Black Death, as classical economists would, but instead invoke alternative or additional explanations, such as institutional or monetary changes.[289] However, such as discussion lies beyond the scope of this chapter and we must restrict ourselves here to the simple observation that the value of none-wage sources of income witnessed a significant decline during the Golden Age for labour.

Although we have already estimated that the loss of revenue from capital and land was probably too limited to completely nullify the positive effects of the rapidly increasing wages for fully employed building labourers (cfr. 2.2 Lazy or industrious?), it remains unclear to what extent they dampened the presumed upward trend in living standards since we lack detailed information on the number and type of assets a typical labouring household in the Middle Ages possessed. For example, it is plausible that the mass mortality during plague waves greatly increased the size of inherited wealth per capita (see general introduction). We do know that an important share of the population was active in the real estate and capital markets. According to the *catasto* of 1427, a tax register for the city of Florence detailing the value of different assets, somewhat less than half the households (42.0%) owned their place

[287] Clark, "The cost of capital and medieval agricultural technique," 274. Land rents were also characterised by a decrease in their absolute values. For example, the rent of four plots of land in Inland Flanders declined on average by 30% between 1328-1332 and 1370-79. See: Thoen, "Landbouwekonomie en bevolking," 369.

[288] Nicholas, *The Metamorphosis*, 216-17; Thoen, "Landbouwekonomie en bevolking," 911-12; C.J. Zuijderduijn, *Medieval Capital Markets: Markets for Renten, State Formation and Private Investment in Holland (1300-1550)* (Brill, 2009), 243.

[289] See for example, B. van Bavel, *Manors and Markets: Economy and Society in the Low Countries 500-1600* (Oxford: Oxford University Press, 2010), 190-93.

of residence. More than one fifth of the assessed units (22.3%) held government obligations.[290] A similar source for Edam, a small town in the Northern Low Countries, shows that 24% of the households owned land or leases and at least 21% owned annuities in 1462.[291] Moreover, by retracing the fiscal position of creditors in early sixteenth-century tax registers for 's Hertogenbosch, a medium-sized city in the Duchy of Brabant, Jord Hanus revealed that households from all layers of society bought public and private annuities. Unsurprisingly, elite families were more active in the capital market and invested larger sums, but to many households lower on the fiscal ladder, the comparably small revenue from annuities provided an important addition to their income. These observations clearly show that wage labour constituted only one of many options to acquire a livelihood. In fact, Hanus calculated that wages only accounted for 18% of the total urban income in 's Hertogenbosch in 1512, whereas capital and entrepreneurial profits represented respectively 35.5% and 46.5%![292]

The limited importance of wage labour brings us to the last point of uncertainty: are wage series representative for other groups in society? After all, the majority of the medieval population was self-employed or relied on piecework. In cities, most craftsmen, like smiths, shoemakers or painters, made their living by selling finished products. Certainly, the prices of these products were determined by the labour invested, but also by several other factors such as used materials, skill level, fashion, etc. The individual cost of each factor cannot be deduced from the sources directly, making it difficult to calculate real earnings. Despite these challenges, some historians have successfully tried to estimate income levels for urban groups outside the building industry, but the results are tentative and fragmentary, often limited to a couple of years and a few locations, which makes a direct confrontation with the rich wage series of construction workers complicated.[293] Even in the County of Flanders and the

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[290] D. Herlihy and C. Klapisch-Zuber, *Tuscans and their families: a study of the Flrorentine catasto of 1427* (New Haven: Yale University Press, 1985), 101-03; "Online Catasto of 1427."

[291] Zuijderduijn and De Moor, "Spending, saving, or investing? Risk management in sixteenth-century Dutch households," 50.

[292] Jord Hanus, *Tussen stad en eigen gewin. Stadsfinanciën, renteniers en kredietmarkten in 's-Hertogenbosch (begin zestiende eeuw).* (Amsterdam: Aksant, 2007); *Affluence and inequality in the Low Countries : the city of 's-Hertogenbosch in the long sixteenth century, 1500 - 1650* (Leuven : Peeters, 2014), 97-131; Bruno Blondé, Jord Hanus, and Wouter Ryckbosch, "The Rise of the Fiscal State? Urban Finances, Politics and Social Inequality in Sixteenth-Century's-Hertogenbosch," in *Inequality and the city in the low countries (1200-2020)*, ed. Bruno Blondé, et al. (Turnhout, Belgium: Brepols, 2020), table 3.

[293] See for example Hanno Brand and Peter Stabel, "De ontwikkeling van vollerslonen in enkele laatmiddeleeuwse texcielcentra in de Nederlanden. Een poging tot reconstructie," in *Peasants and townsmen in medieval Europe*, ed. Jean-Marie Duvosquel and Erik Thoen (Gent: Belgisch centrum voor landelijke geschiedenis, 1995); William Caferro, "Petrarch's War: Florentine Wages and the Black Death," *Speculum* 88, no. 1 (2013).

Republic of Florence, the two most urbanised regions of medieval Europe, about two thirds of the population still lived and toiled in the countryside.[294] Here, casual wage labour might have been more prevalent than in cities, especially during harvest times, but still the majority of households mainly depended on their access to land and its produce to generate an income. For instance, in sixteenth-century Inland Flanders, wage labour accounted only for one fourth of the total labour input. In some regions and times, its share could be substantial higher, such as sixteenth-century Holland or the Guelders river area where wage labour accounted for about half of the total input.[295] However, landless labourers were certainly a minority in late medieval Flanders and Florence, and most of them were employed on an annual rather than a daily basis. As we have seen, calculating earnings of such farm servants comes with many pitfalls and its results should be handled carefully. In a similar fashion, scholars have tried to model the income of farmers by reconstructing the working routine of a hypothetical household. Farming is a complex and year-long process however, including a wide range of tasks and many factors may influence the outcome. While some of the factors are decided by the farmers, such as crop choices, weeding practices or fertilising, others are forced upon them, like weather, feudal dues or market conditions. Hard data for all these variables is rarely available and the interaction between variables could vary significantly depending on time and place. Unsurprisingly, historians have come up with a wide range of estimates.[296]

What is clear from all these valiant efforts to reconstruct household income for different groups, factors of production, and family members, is that the debate remains largely inconclusive: we are left with some impressions of trends that either corroborate or counter the idea of a Golden Age for labour. Trying to piece together the typical household income for the Late Middle Ages, if such a single profile would even exist, would thus require extensive use of modelling and assumptions based on patchy and contradicting evidence. This is not to say that such exercises are impossible or useless, but rather that their results will always be highly contentious.[297] Faced with similar problems for the early modern period, the

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[294] Herlihy and Klapisch-Zuber, *Tuscans and their families*; Prevenier, "La démographie des villes."

[295] Bas J. P. Van Bavel, "Rural wage labour in the sixteenth-century Low Countries: an assessment of the importance and nature of wage labour in the countryside of Holland, Guelders and Flanders," *Continuity and Change* 21, no. 01 (2006): 62.

[296] Even for England, where data on medieval agricultural practices and output is most abundant, estimates diverge. See for example: Dyer, *Standards of Living in the Later Middle Ages: Social Change in England C.1200-1520*, 184-85; Harry Kitsikopoulos, "Standards of living and capital formation in pre-plague England: a peasant budget model," *The Economic History Review* 53, no. 2 (2000); C. Howell, *Land, Family and Inheritance in Transition: Kibworth Harcourt 1280-1700* (Cambridge University Press, 2010), 162-63.

[297] See for example the latest effort to reconstruct the income of different types of families in premodern England in Horrell, Humphries, and Weisdorf, "Beyond the male breadwinner." While the article helps to demonstrate the

already mentioned Blondé and Hanus developed an alternative and most innovative method to benchmark the experience of building labourers vis-à-vis other groups, one that relies on a more direct proxy of households' total resources. By retracing the fiscal position of individual carpenters, masons, and unskilled workers in taxations records of income and, as a proxy of the former, house rents for 's Hertogenbosch between 1501 and 1558, they were able to show that their fortunes waxed and waned in accordance with remuneration. For example, real wages for unskilled labourers had declined by half during the period under investigation (from 5.9 consumer baskets to 3.0 baskets for 250 days of work). In 1501, Willem Voss and Engbert van de Heesakker worked on average 226.5 days for the city, which suggests that they were fully employed labourers who were primarily dependent on wages for their livelihood. Income taxes revealed that they belonged between the 24th and 37th percentile of the fiscal population. In 1557, Jan van Schnijdel and Theeuwen Theeuwens toiled a similar amount of days for the city (227 days), but this time the two unskilled labourers were considered too poor to contribute to the income tax. In a next step, Blondé and Hanus extrapolated the relationship between the earnings of the fully employed building labourers and their tax contribution to the remainder of the assessed households. More specifically, they divided the quotes of labourers by their annual wages to establish how much income each unit of taxation represented. The ratio could then be applied to the entire tax register. The results showed an evolution opposite to what we would expect based on daily wages. Median households witnessed an increase in their real income from 2.0 to 3.3 consumer baskets (+65%) between 1501 and 1558. In other words, wage series did seem to capture the trend in living standards for building labourers adequately but not at all for society at large. Households that were not primarily dependent on wage labour were far more resilient to economic fluctuations.[298]

Somewhat surprisingly, the methodology of Blondé and Hanus has not yet been applied to other periods or locations even though it holds the potential to fundamentally reshape our understanding of living standards in the past. This is especially true for the massive spike in real wages after the Black Death. The remainder of this chapter investigates to what extent the fiscal position of building labourers did conform to the trends in remuneration we observed in our previous chapters. In other words, how dependent the total income of

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importance of looking at the household composition, savings, and life-cycles when calculating living standards, the amount of assumptions made is simply too great to attribute much reality to the absolute trends. For instance, participation rates of women in the medieval period are based on a single reference in the statute of labourers of 1351, which stated that every able-bodied woman was obligated to work to counter the labour shortages after the Black Death. As we have seen, a lively debate exists on the issue of labour opportunities for women.

[298] Blondé and Hanus, "Beyond building craftsmen. Economic growth and living standards in the sixteenth-century Low Countries: the case of 's-Hertogenbosch (1500–1560)."

construction workers is on their wage labour vis-à-vis the total revenue of other groups in society. First, we will explore if medieval taxation records can serve as a proxy for total household income. Unlike the sources employed by Blondé and Hanus, the registers available for the Southern Low Countries and the Republic of Florence are not directly linked to income but rather assess a combination of key assets. A discussion of the fiscal regime as well as the availability, characteristics, and limitations of tax records for both regions is therefore needed. It also serves as a stepstone to Chapters Four and Five, where the same sources are used to explore the issues of inequality and absolute wealth levels. Secondly, we try to compare the fiscal position of the entire building industry to other occupational sectors. We will see that, on this general level, construction workers can mainly be characterised as lower-middle classes. However, information on the occupational distribution in tax lists is limited, often socially biased and rarely available for multiple years for the same locality, making robust comparisons across time and space difficult. Moreover, the aggregate data obscures important intra-sectorial differences. The third section subsequently proposes some alterations to the methodology of Blondé and Hanus to circumvent the mentioned limitations of the medieval source material. Rather than benchmarking the entire industry or occupational group in a single locality, we will explore the fiscal position of three distinct groups, based on their dependency on wages, in several cities of the counties of Flanders and Hainaut between 1290 and 1500. Unfortunately, a similar approach for the Republic of Florence proved unfeasible. Moreover, given the indirect link between income and taxation, the results are confined to the relative evolution of living standards. They nevertheless raise some serious questions about the representativeness of building wage labourers for the rest of society.

3.1 To tax or not to tax? That's the question

Compared to modelling household incomes for different groups, studying taxation records as alternative proxies provide three distinct advantages. First, tax lists provide a readily available stratification of society, expressed in a single digit. There is no need to combine a variety of sources to retrace the evolution of different assets, household compositions, and so forth. Second, taxation records often pertain to a broad segment of the population, especially the middle classes, which greatly increases the social representativeness of the results beyond a limited subset of wage-earners. Third, they are available for a multitude of localities across all of Europe from the late thirteenth century on in some rare cases, but more abundantly from the fifteenth century on. This allows us to track changes over time, whereas data on labour time, interest rates, lease prices, etc. are often scarce and patchy for the medieval period (cfr. the introduction to the chapter).

Notwithstanding the aforementioned advantages, the link between medieval taxation records and the evolution of income is not self-evident. Virtually all tax lists of the Late Middle Ages are based on wealth or mixed criteria (i.e., any combination of wealth, income and/or status). This can be problematic because wealth and income do not necessarily move in the same direction. Rather than investing, any gains in the household budget can be used for consumption. For example, hedonism seem to have proliferated after the Black Death, or at least so did the moral concerns about hedonism by lay and church authorities. In Ghent, the aldermen tried to retain social order by closing all drinking establishments for the night and prohibiting the sale of wine before sunrise.[299] Moralistic literature about laziness and gluttony, such as the previously discussed poem of Piers Plowman, multiplied in the same period. In the long run, the emergence of a 'Carnivorous Europe' (see general introduction) probably meant that lower classes opted to spend a larger share of their gains on a better diet relative to the top of society. To circumvent the lack of direct observations on income taxes, historians, such as Blondé and Hanus, have regularly employed the rental value of houses as a proxy.[300] Unfortunately, housing taxes are extremely rare and fragmented before the sixteenth century. Currently, we are only aware of two lists for the Southern Low Countries and the Republic of Florence combined (Bruges in 1382 and Florence in 1305), and both only cover a small part of the city (less than a quarter).[301] Even in the famous and incredibly

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[299] Vermeersch, *1349.*

[300] See for other examples: L. Soltow and J.L. van Zanden, *Income and Wealth Inequality in the Netherlands, 16th-20th Century* (Transaction Publishers, 1998); Wouter Ryckbosch, "Economic inequality and growth before the industrial revolution: the case of the Low Countries (fourteenth to nineteenth centuries)," *European Review of Economic History* 20, no. 1 (2015). Another alternative are social tables, but they are not available for the regions under study.

[301] Algemeen Rijksarchief Brussel, Rekenkamer, n. 4569, Brussels; Archivio di stato di Firenze, Estimi, n. 1, Florence.

detailed *catasto* of 1427, the personal residence of each contributor was exempt from taxation and wasn't always valued, especially in the case of tenants.[302] On the other hand, we should not overestimate the issue considering that wealth and income are often closely related in practice. As we have seen, many households obtained a substantial share of their revenue from certain assets, such as land or annuities, which are important parts of the patrimony. Reversely, they used their income to build up their assets. Indeed, evidence from eighteenth-century Spain shows that the total value of households' probate inventories was closely associated with their position in the Ensenada Cadastre, a census that detailed all income sources. However, some reservations need to be made. The relationship clearly differed between craftsmen and farmers since land, a highly valuated asset, plays a much larger role for the income of the latter group.[303] Given that we will focus on identifying building labourers in an urban setting due to methodological constraints (cfr. 3.3 In search of building labourers and entrepreneurs) and given that farmers were generally a small minority in cities, the difference between the agricultural sector and other economic sectors isn't too much of a concern. More importantly, the distribution of wealth is more unequal than that of income. Households at the bottom have very few assets besides their own labour, which is not included in wealth assessments. At the other end of the spectrum, elite families often invest in status symbols and luxury assets that either return relatively little revenue compared to their cost or are excluded from taxation based on privileges. Employing stratifications based on wealth thus risks underestimating the income of poorer households and, conversely, overestimating income at the top of society. We will therefore look primarily at the middle of the distribution, for which the relationship is most robust. Moreover, we will restrict ourselves to the relative evolution of total income instead of extrapolating absolute changes.

Late medieval tax records also come with their own set of methodological issues. In this transitional age between the territorial states of the Middle Ages and the fiscal-military states of the early modern period, taxation systems were rapidly evolving. Rulers continuously sought new ways to gather more revenue from their subjects as the traditional income from their domains proved insufficient to finance their military campaigns. Depending on the political context, the possibilities to develop such fiscal strategies differed greatly in Europe.[304]

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[302] This didn't stop Peter Lindert to estimate income inequality based on numerous assumptions, including rental values. Peter H. Lindert, "Tuscany 1427," (2008), Working paper, https://gpih.ucdavis.edu/files/BLW/Tuscany_1427.doc.

[303] Esteban A Nicolini and Fernando Ramos-Palencia, "Comparing income and wealth inequality in pre-industrial economies: the case of Castile (Spain) in the eighteenth century," *European Review of Economic History* (2021).

[304] On the topic of the rise of the fiscal state, see for example the overviews in: Richard Bonney, *The rise of the fiscal state in Europe, c. 1200-1815* (Oxford: Oxford University Press, 1999); B. Yun-Casalilla, P.K. O'Brien, and F.C. Comín, *The Rise of Fiscal States: A Global History, 1500-1914* (Cambridge University Press, 2012).

Thanks to a strong and continuous central government, the Republic of Florence managed to impose already from the middle of the thirteenth century on a singular and regular tax, called *estimo*, on the *contado*, which was the region surrounding the city of Florence and compromising more than 1,100 villages and towns.[305] The capital itself was exempt from the rural *estimi* in 1315, but regular estimations of wealth (also called *estimi*) and forced loans (*prestanze*) were still conducted prior to the introduction of the *catasto* in 1427, a new tax that was levied in both the city and the *contado*. From the 1330's on, the Republic of Florence greatly expanded its territory, conquering lands that were previously governed by cities such as Pisa, Volterra, or Arezzo. The Republic regularly tried to integrate these communities into the fiscal regime of the *contado*, but only managed to do so with varying success. More often than not, a general contribution was demanded and communities were free to choose how they would raise the necessary funds. In this conquered area, called the *distretto*, local or regional traditions in taxation persisted for a longer period.[306]

In comparison to the Republic of Florence, central authority in the Southern Low Countries was much weaker. Both in Hainaut and Flanders, the counts had little authority to impose direct taxes on the entire population before the second half of the sixteenth century. Instead, they had to consult with delegates of the nobility, clergy, and bourgeoisie, unified in a political body called the *Staten*, whenever they sought financial aid from their subjects. In the County of Flanders, this prerogative was preceded and, afterwards, often superseded by the assembly of the Three or, later on, Four Members (i.e. representatives from the cities of Bruges, Ghent, Ypres, and the countryside of the *Brugse Vrije*).[307] If the Members or *Staten* approved the request, they negotiated how the levy was partitioned among the different territories and cities within the County. Further partitioning sometimes ensued by intermediate governments, for example at the castellany level, but each individual community ultimately decided how they would fulfil their appointed quota. A very similar procedure was followed when such an intermediate government requested aid in covering exceptional costs. Naturally, individual communities themselves could also impose taxes on their subjects though they often needed formal approvement from the count before doing so. Depending on the final beneficiary, direct taxations were called differently in the County of Flanders. They were generally called *pointingen* for the count, *zettingen* for the

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[305] Guido Alfani, "Economic Inequality in Northwestern Italy: A Long-Term View (Fourteenth to Eighteenth Centuries)," *The Journal of Economic History* 75, no. 4 (2015): 1076.

[306] Herlihy and Klapisch-Zuber, *Tuscans and their families*, 39-41.

[307] W. Prevenier, *De Leden en de Staten van Vlaanderen (1384-1405)*, Verhandelingen van de Koninklijke Vlaamse Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Klasse der Letteren (Brussel: Paleis der Academiën, 1961).

intermediate governments, or *tallia* for local affairs though the terminology is often mixed up in practice. In the County of Hainaut, they were all named *tallia* or *taille* in French, but the cause for the levy was usually given in the preamble. Whatever the finality of a financial request, direct taxation of the residents was only one of many options. The sale of rents, lotteries, leasing out of communal grounds, (forced) loans, etc. were equally viable. Larger cities often generated enough revenue through their indirect taxation of consumption to pay their quota without additional efforts. As a consequence, very few requests, if any, resulted in the kind of all-encompassing sources we described for the *contado* of Florence.[308]

It is clear from this short overview than in neither part of Europe the evolution towards a fiscal-state was complete by the sixteenth century. Taxation was not yet the monopoly of the central government, even in the Republic of Florence. The fragmentation of power and the continuous search for better methods of taxation resulted in a wide variety of levies. Within the limits of customs and laws, officials were often free to choose who, what and how much they taxed. This wouldn't be problematic as long as we can control for these differences across time and space. Unfortunately, the sources rarely state which criteria have been used and this may hinder our understanding of the evolving fiscal position of building labourers. A detailed discussion of the problems posed by each criterion is therefore needed:

Let us first turn to the share of the population included in the registers. The general principal in both regions stated that the rich should provide for the poor.[309] This last category does not pertain to vagrants and paupers, who were not seen as part of the community, but to established households whose income or wealth fell below a certain threshold that was deemed too low to be able to contribute without hurting their financial situation. The share of fiscal poor could be substantive. For the County of Flanders, a hearth census in 1469 shows that, on average, one fourth of the rural households was labelled as poor though figures per village varied significantly (from 8.5% to 40%). A census for rural Hainaut in 1540 returns similar results (26.9% on average). [310] For the Republic of Florence, the *catasto* of 1427 shows that one fifth of the assessed households (20.6%) in the *contado* and capital did not have to

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[308] "De beden in het graafschap Vlaanderen onder Filips de Stoute (1384-1404)," *Revue belge de philologie et d'histoire* 38, no. 2 (1960); Nicolaas Maddens, *De beden in het graafschap Vlaanderen tijdens de regering van keizer Karel (1515-1550)* (Heule: UGA, 1978); A. Zoete, *De beden in het graafschap Vlaanderen onder de hertogen Jan zonder Vrees en Filips de Goede (1405-1467)* (Brussel: Paleis der Academiën, 1994); Arnould, *Les dénombrements de foyers*.

[309] Herlihy and Klapisch-Zuber, *Tuscans and their families*, 1-20; Zoete, *De beden in het graafschap*, 197-220; Thijs Lambrecht, "Economic inequality in late medieval and early modern rural Hainaut (c. 1420 c. 1540)," in *Inequality in rural Europe (Late Middle Ages-18th century)*, ed. Guido Alfani and Erik Thoen, Comparative Rural History Network (Turnhout: Brepols, 2020), 173.

[310] W. P. Blockmans and W. Prevenier, "Poverty in Flanders and Brabant from the Fourteenth to the Mid-Sixteenth Century: Sources and Problems," in *Acta Historiae Neerlandicae*, ed. I. Schöffer (Springer Netherlands, 1978), 33-35.

contribute.[311] The threshold for exclusion was very fluid because it largely depended on the other two tax criteria (see below). In the Flemish city of Diksmuide for example, an all-time low of 133 households were forced to contribute in 1440, whereas 621 households paid their levy just two years later.[312] Obviously, it would be wrong to compare these two lists uncritically: even the lower quotes in the first register probably correspond to the highest quintile in the second register given its limited social scope. For our selection of sources, we have therefore always compared the number of assessed households to any available demographic data and restricted ourselves to the most inclusive tax register to retrace the position of building labourers over time (see Tables 3.2 and 3.4).

Aside from the financial situation, the social status could play an important role. Just as in most regions in medieval Europe, clergy and nobility in the Southern Low Countries were often exempt from direct taxation levied on commoners. Instead, they negotiated their own partition whenever the count was granted financial aid. Regretfully, such sources have rarely survived. An exceptional repartition table for the County of Hainaut from 1365 reveals that the nobility and clergy possessed a substantial part of the total wealth (respectively 6.76% and 13% of the total) even though they constituted a very small minority of the population (357 noble families were assessed versus 30,747 rural households).[313] Yet, in some instances, (a part of) the two privileged groups were subject to taxes. In the already mentioned town of Diksmuide, religious institutions and priests had to contribute 27.6% of the total expected revenue in 1406.[314] In the city of Mons, 84 beguines were mentioned in the register but eventually not taxed in 1365.[315] For the Republic of Florence, nobility and clergy in the capital and *contado* were subject to the various *estimi*, *prestanze* and *catasti*, but many of their assets, such as feudal lands, were exempt from taxation.[316] As a result, their total wealth is severely underestimated in the sources. While it is important to acknowledge the different practices in both regions and the challenges they pose to interpreting tax registers, the impact on our analysis will be minimal. Since the treatment of the privileged groups remained consistent throughout the medieval period within each region, the relative evolutions of the

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[311] Herlihy and Klapisch-Zuber, "Online Catasto of 1427."

[312] Zoete, *De beden in het graafschap*, Appendix VII.

[313] Aside from the general partition in 1365, the distribution among religious institutions in the County of Hainaut has survived for 1424 and 1501 though their contribution in the total tax was fixed at one third and is therefore not indicative of their wealth relative to the other two estates (i.e. the nobility and the commoners). Arnould, *Les dénombrements de foyers*, 412-20; *Acquits ou documents justificatifs, rendus par le receveur des aides de Hainaut a l'appui de ses conmptes (1496-1540)* (Bruxelles: Paleis der Academiën, 1941), 46-53.

[314] Zoete, *De beden in het graafschap*, Appendix XIII, 552.

[315] Paul Heupgen, "Le rôle de la taille de Mons de 1365," *Annales du cercle archéologique de Mons* 55 (1937): 83-84.

[316] Herlihy and Klapisch-Zuber, *Les Toscans et leurs familles*, 150.

fiscal position of building labourers will be unaffected whether or not these groups are included.

Next to the question of who to include, local officials also had to decide what they were going to tax. Across medieval Europe, wealth, or more specifically, real estate was the most common basis. This seemed to have been the case initially in both regions under study. Although the exact procedures differed between the three types of taxes and within each type over time, the basis for the evaluation remained relatively constant in the Republic of Florence. The forced loans, which were levied during the entire period under consideration, were proportional to contributors' fortunes as estimated by multiple boards of assessors. In the same vein, the *estimi* were based on a general indication of household wealth, mainly informed by the size of immovable properties. The *catasto* of 1427 tried to introduce a more objective and systematic assessment of the different assets, but due to the administrative complexities connected to such a largescale operation, subsequent iterations of the tax reverted back to a more traditional estimate primarily based on real estate values. Furthermore, Guido Alfani and Francesco Ammannati performed a Chow-test for the same type of taxes in the *contado* and secondary cities of Florence. This statistical test compares the regression coefficients of the different datasets to reveal any structural breaks between them. The result for the *estimi* and *catasti* returned negative.[317]

In the Southern Low Countries, the basis for taxation seemed to be comparable from at least the late thirteenth century on until the beginning of the fifteenth century. For example, contributions for a comital request were levied in direct proportion to the size of land owned in the Flemish countryside during the first decade of the fourteenth century (between 25 and 30 d. per hectare owned).[318] For the city of Mons, the capital of the County of Hainaut, some exceptional surveys prior to the levy of a comital tax in ca. 1280 are preserved. They reveal that officials estimated both movable and immovable wealth to serve as a basis for taxation.[319] In both counties, the fiscal system evolved over time. From 1408 on, repartition in the County of Flanders was no longer based on landed property alone but on the personal finances of the inhabitants, which included multiple components of wealth and income. From then on, taxes were imposed '*selon estat et faculté*' (according to state and ability). Similarly, officials in fifteenth-century Hainaut started to assess households by their '*faculté*

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[317] *Tuscans and their families*, 1-27. Guido Alfani and Francesco Ammannati, "Long-term trends in economic inequality: the case of the Florentine state, c. 1300–1800," *The Economic History Review* 70, no. 4 (2017): 1074-88.

[318] Zoete, *De beden in het graafschap*, 55, footnote 3.

[319] Christiane Piérard, *Les plus anciens comptes de la ville de Mons, 1279-1356* (Bruxelles: Palais des Académies, 1971), 517-23.

et richesses' (ability and wealth) or *'chevance'* (ability to raise money).[320] The new mentions of 'ability' in these cases refers foremost to the income of each contributor, including revenue from landownership but also from rents, annuities, occupation, etc. The evolution towards a more comprehensive and mixed system can probably be explained by the proliferation of the industry and services: a growing share of the total population was no longer dependent on the size of their holdings to make a living and, consequently, the relationship between land and total wealth as well as income became blurred. To what extent officials eventually taxed each asset and source of revenue is unfortunately rarely stated. While a mixed basis for taxation was clearly innovative in some regions of the Southern Low Countries in the fifteenth century, it had already been adopted elsewhere from an earlier date on. For instance, a legal document mentions that the castellany of Veurne already applied such a method in 1332, more than seventy years before its general introduction.[321] On the opposite end, pure wealth taxes never disappeared completely. The medium-sized city of Kortrijk still imposed their citizens in accordance to their fortunes in 1440.[322] Housing taxes were levied in Bruges in 1382 and in Ghent in 1492.[323] In the County of Hainaut, officials in the small town of Chièvres regularly taxed households based on the potential inheritance they would leave behind, encompassing their houses, rents and lands, in the fifteenth and sixteenth century.[324] These examples demonstrate that fiscal systems continuously evolved and not necessarily in a linear direction. The often unknown variations insert a certain margin of error when comparing communities over time and space. In general, though, we may assume that both the data for the Southern Low Countries and the Republic of Florence remained largely based on (certain elements) of wealth during the Late Middle Ages.

A last hurdle for the analysis pertains to how much officials decided to tax. Only in some rare occasions do we know the employed rate, but they already show significant differences. The aforementioned tax of Kortrijk in 1440 amounted to 0.3 % on the total wealth for citizens and 0.2% for outburghers, households who lived in the countryside and had acquired citizenship.[325] Even in a single *estimo* of the Florentine *contado*, rates could differ significantly.

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[320] Zoete, *De beden in het graafschap*, 55-66; Lambrecht, "Economic inequality," 173.

[321] Zoete, *De beden in het graafschap*, 55, footnote 2.

[322] Cecile Pauwelyn, "De gegoede burgerij van Kortrijk in de 15e eeuw (1433-1496)," in *Studiën betreffende de sociale strukturen te Brugge, Kortrijk en Gent in de 14e en 15e eeuw*, ed. W. P. Blockmans, et al. (Heule: UGA, 1971), 160.

[323] W. P. Blockmans, "Peilingen naar de sociale strukturen te Gent tijdens de late 15e eeuw," ibid.; Willy Vanderpijpen, "Vergelijking van de sociale samenstelling van de bevolking van het St-Jakobszestendeel te Brugge in 1382-83 en 1394-96," ibid.

[324] The registers are preserved for 1424, 1540 and 1574 and 1600. Cartulaires de la taille d'héritage, State Archives Mons, AEM.01.02, nos. 366-370.

[325] Pauwelyn, "De gegoede burgerij van Kortrijk in de 15e eeuw (1433-1496)," 160.

For example, in the register of 1393, communities near the capital were charged as little as 0.36% whereas those in the more distant mountains as much as 10.51%.[326] For the citizens of Mons, the relationship between late thirteenth-century surveys and the subsequent *taille* suggests a tax rate between 1.54% and 5.32% (see Table 3.1). Such variation within a single tax register stems from the use of income or wealth brackets and the regressive nature of medieval taxation. When officials had to decide how much they would tax each household, they had the tendency to use only a certain number of fiscal categories rather than calculating a perfectly proportionate levy for every contributor. This method had the advantage of being fast and easy to manage administratively. The downside of this grouping is the loss of information. In reality, very few households would own the exact same level of wealth and, consequently, the number of unique contributions would be nearly identical to the number of taxpayers. Due to fiscal clustering, we cannot assign each household to a single percentile of the distribution but are forced to work with average percentiles per quote. For a fictional taxation of hundred households divided equally over two quotes, this would mean that all households in the bottom half (P0-P50) would be assigned to the 25th percentile and those in the top half (P50-P100) to the 75th percentile. Obviously, the discrepancy between reality and medieval taxes isn't as great as in this hypothetical example. The sources employed in the third section of this chapter list on average 41.8 quotes for every 1,019 assessed households (see Table 3.4), which implies that the general margin of error when determining the percentile is limited to 2.4% albeit real errors may be greater depending on the number of quotes per taxation list and the effective distribution per quote. As a rule, more households paid the lower quotes compared to the top contributions. In the end, the methodology proved detailed enough to retrace important changes over time (see 3.3 In search of building labourers and entrepreneurs).

TABLE 3.1 TAX RATES PER WEALTH BRACKET IN THE TAILLE OF MONS (CA. 1280)

Total wealth (in d. tor.)	Tax rate (mean)	Taxpayers (N)
<1,000	5,32%	28
1,000-10,000	2,66%	97
10,000-100,000	2,18%	39
>100,000	1,54%	6

Sources: Christiane Piérard, *Les Plus Anciens Comptes*, 517-23.

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[326] S.K. Cohn, *Creating the Florentine State: Peasants and Rebellion, 1348-1434* (Cambridge: Cambridge University Press, 1999), 73.

Table 3.1 does not only reveal a wide range of tax rates employed in the *taille* of Mons, but also shows a clear social bias. While elites usually paid the largest share of the levy, their contribution relative to their total fortune was lower than that of other classes. For example, households whose wealth was assessed to be below 1,000 d. tor. were taxed at a rate more than three times higher compared to the richest households. The regressive nature of premodern taxation is widely observed for Europe and is even considered as one of the driving factors of increasing inequality in the early modern period (see also Chapter Five).[327] It shows that taxes are not objective reflections of social hierarchies but were tools for those in power. They are a product of a specific historic context with its own set of rules. Given the absence of information on individual tax rates in most cases, there is very little scholars can do to remedy this issue, however. Instead, we simply assume that the distortion is relatively consistent across sources. On a more general level, the lack of information makes it difficult to measure absolute changes in wealth and/or income. Again, this isn't problematic for this chapter as we are interested in the relative fiscal position, which is independent from the precise rate. It does pose a problem for our next chapters, where we are forced to take some extra steps.

At the end of this extensive review of the limitations and shortcomings of tax records, one may wonder if the benefits outweigh the risks. Imperfect as the sources may be, they do provide us with a proxy for income and wealth for a period where we have little alternatives. In fact, the link is probably more direct than those between daily wages and income. As we have seen, many and more fundamental issues can be voiced against the representativeness of wage series. It is thus past time we move beyond the mere remuneration of building labourers. In the following pages, we will prove that tax records allow us to do so.

3.2 Occupational structure and the building industry

To assess the representativeness of the building industry for society at large, we need to gather data on the fiscal distribution of households in each occupational sector. In most tax records, this information is only recorded haphazardly by officials. The practice was mainly used to avoid confusion when two individuals share the same name though other, somewhat common reasons exist. Sometimes the odd references to occupational titles can be attributed to the preference of a certain official. For example, in the census of Prato in 1372, the trade of the male heads was recorded consistently in one part of the city, in a section of *la porta* Gualdimare. For the other areas in Prato, only judges, notaries and doctors were regularly

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[327] Guido Alfani and Matteo Di Tullio, *The Lion's Share: Inequality and the Rise of the Fiscal State in Preindustrial Europe*, Cambridge Studies in Economic History - Second Series (Cambridge: Cambridge University Press, 2019).

reported.[328] These professions are found most regularly in tax records, both in the Southern Low Countries and the Republic of Florence, because they are connected to honorary titles, such as *Domini* in Italian or *Meester* in Dutch. In the same vein, clergy and nobility can be identified easily thanks to their specific titles, however, as we have seen, those groups were sometimes exempt from taxation. Another reason for recording titles can be found in the affiliation of the individual with the urban government: the clerk working for the aldermen bench or the contractor the city hired to maintain the roads for instance.[329] Lastly, the information was more likely to be reported when there was a large discrepancy between the expected contribution of a household based on its status and its effective fiscal position. For example, curriers normally belonged to the lower strata of society, but in a tax list for Ypres in 1326, currier (*ledertauwere*) Jan van Waerstinne was one of the richest contributors (P95). Apparently, the officials felt the need to point out this abnormal situation.[330]

In general, the above situations rarely result in a representative overview of the occupational sectors and the fiscal capacity of its members in a city. The aforementioned tax lists for Prato and Ypres only contain information for respectively 6.0% and 4.3% of the households, with very few data on the building industry. Nevertheless, some exceptional sources do provide the necessary references for a significant share of the population. For the Republic of Florence, the most comprehensive records are found in the taxes and forced loans of its capital. On average, the trade of 40.3% of the head of households was given by officials (see Table 3.2). Consultable databases are available for the *catasti* of 1427, 1458, and 1480 based on the extensive studies of David Herlihy and Christiane Klapisch-Zuber.[331] For the most recent two taxes, they limited themselves to a random sample of ca. 10% of the assessed households. As a result, the number of observations for the building industry is low, especially for 1480, and may not be entirely representative. For the earlier period, we processed the entire *esimi* of 1352 and a sample for the *prestanza* of 1379, encompassing

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[328] Enrico Fiumi, *Demografia movimento urbanistico e classi sociali in Prato dall'età comunale al tempi moderni* (Firenze: Leo S. Olschki, 1968), 91.

[329] See the example of Willem *der stadwerckman* (city worker) in Blondé and Hanus, "Beyond building craftsmen. Economic growth and living standards in the sixteenth-century Low Countries: the case of 's-Hertogenbosch (1500–1560)," 187.

[330] Two other curriers could be identified through the city accounts. They belonged to the 22nd percentile and the 56th percentile of the distribution. Here, no occupational information was given in the tax list. G.D. Marez and É. de Sagher, *Comptes de la ville d'Ypres de 1267 à 1329* (Brussels: Kiessling, 1913), vol. 2, 367, 498-523.

[331] Herlihy and Klapisch-Zuber, "Online Catasto of 1427."; David Herlihy and Christiane Klapisch-Zuber, "Census and property survey of Florentine domains and the city of Verona in the fifteenth century Italy [Machine readable data file]," (Madison: University of Wisconsin, Data and Information Services Center, 1977).

TABLE 3.2 REFERENCES TO OCCUPATIONAL TITLES AND BUILDING LABOURERS IN TAXES

City	Year	Number of households	Sample (% of total)	Origin of info	Identified (% of sample)	Total in building	Building (% of identified)
Florence	1352	9,955	All	Source	40.1	164	4.1
	1379	12,905	28.5	Source	22.5	27	3.3
	1427	9,780	All	Source	54.3	288	5.4
	1458	(7,500)	(10.0)	Source	42.7	23	7.2
	1480	(8,310)	(10.0)	Source	41.9	14	4.0
Pisa	1427	1,751	All	Source	54.6	53	5.5
Pistoia	1427	1,250	All	Source	36.1	17	3.8
Arezzo	1427	1,206	All	Source	36.4	23	5.2
Weighted avg. Republic of Florence (each community = 1)					41.8		4.8
Mons	1365	1,660	All	Source	70.0	192	16.5
Bruges	1394	(6,481)	(58.1)	De Meyer	27.7	103	10.2
Damme	1395	245	All	Source	100.0	29	11.8
	1400	222	All	Source	100.0	32	14.4
Diksmuide	1442	621	All	Zoete	47.7	48	16.2
Weighted avg. Southern Low Countries (each community = 1)					61.3		14.0

Notes: estimates are given in brackets; for the categorization of occupations in sectors, see Appendix 3.1; number of households for Florence 1379 based on Stella, for Bruges 1394 on Deneweth; for information on how the samples were selected, see text.

Sources: Estimo 1352, 306, Estimi, Archivio di Stato di Firenze, Florence; Prestanza 1378 San Croce, 367, Prestanze, Archivio di Stato di Firenze, Florence; Prestanza 1378 Santa Spirito, 268, Estimo, Archivio di Stato di Firenze, Florence; Stella, Alessandro. "Fiscalità, Topografia E Società a Firenze Nella Seconda Metà Del Trecento." *Archivio Storico Italiano* 151, no. 4 (558) (1993): 797-862; Herlihy, David, and Christiane Klapisch-Zuber, "Online Catasto of 1427 [Machine Readable Data File Based on D. Herlihy and C. Klapisch-Zuber. Census and Property Survey of Florentine Domains in the Province of Tuscany, 1427-1480.]," Brown University; idem. "Census and Property Survey of Florentine Domains and the City of Verona in the Fifteenth Century Ltaly [Machine Readable Database]." Madison: University of Wisconsin, Data and Information Services Center, 1977; Heupgen, Paul. "Le Rôle De La Taille De Mons De 1365." *Annales du cercle archéologique de Mons* 55 (1937): 41-95; De Meyer, Ingrid. "De Sociale Strukturen Te Brugge in De 14de Eeuw." In *Studiën Betreffende De Sociale Strukturen Te Brugge, Kortrijk En Gent in De 14e En 15e Eeuw*, edited by W. P: 52-56; Deneweth, Heidi. "Een Demografische Knoop Ontward? Brugse Bevolkingscijfers Voor De Vroegmoderne Tijd." *Handelingen van het Genootschap voor Geschiedenis* 147 (2010): 29; Zoete, A. *De Beden in Het Graafschap Vlaanderen Onder De Hertogen Jan Zonder Vrees En Filips De Goede (1405-1467).* Brussel: Paleis der Academiën, 1994: Appendix VIII; Rekening Van De Tresoriers Mattiis Van Mendonc, Jan Van Ghedezbeke. 25 December 1394 - 25 December 1396, 33545, Stadsrekeningen van het Graafschap Vlaanderen: Damme, Algemeen Rijksarchief Brussel, Brussels; Rekening Van De Tresoriers Jan Van Ghedezbeke En Jac[Op Bastins]. 25 December 1399 - 25 December 1400, 33549, Stadsrekeningen van het Graafschap Vlaanderen: Damme, Algemeen Rijksarchief Brussel, Brussels.

about one fourth of the total fiscal population. In function of our analysis of inequality in Chapter Five, this sample was not chosen at random but focuses on the southeastern part of the city (including the five *gonfaloni* Bue, Carro, Lion Nero, Ferza, and Scala). A comparison with the data for 1352 shows that the inhabitants of this area were on average wealthier than the general population (+24.7%), which may lead us to overestimate the fiscal position of building labourers in this period. Nevertheless, the impact should be limited because we only compare quotes within the sample and not to the city at large. Aside from the capital, the *catasto* of 1427 also assessed households in other cities belonging to the *contado*. Given the exceptional status of Florence, both in terms of demography and wealth, we included the data for communities with more than 1,000 households in our analysis to check if the situation in the capital is representative for major cities in the Republic as a whole.[332]

For the Southern Low Countries, there are unfortunately no cities for which we possess a comparable long-term series of tax records with sufficient occupational references.[333] However, what the sources lack in quantity, they do make up in quality. A register for Mons, the political capital of the County of Hainaut, contains information for no less than 70% of all households.[334] For Damme, a small town near Bruges, officials grouped households per trade rather than location in four taxations between 1395 and 1400, resulting in a complete overview of the occupational structure. We have included the first and last levy in our analysis. For the County of Flanders, we also possess of two studies in which scholars tried to identify the occupation of taxpayers through a multitude of sources. Most famously, Ingrid De Meyer cross-referenced the names of workers and artisans in six different series of accounts of religious and public institutions with the names of the heads of households in a tax list for Bruges from 1394-96. In the end, she was able to link 1,011 individuals or 27.7% of the included fiscal population.[335] The preservation of the tax records is unfortunately, like any other medieval tax for this city, incomplete. It only pertains to three of the six wards, called *zestendelen*, which probably contained slightly more than half of the total population based on their relative surface.[336] The sample appears to be representative for Bruges as a

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[332] Herlihy and Klapisch-Zuber, *Tuscans and their families*, 94; Epstein, "Cities, Regions and the Late Medieval Crisis: Sicily and Tuscany Compared."

[333] For an extensive overview of the available sources, see Appendix 4.1.

[334] The source contains several references to *manouvriers* (unskilled labourers) without specifying in which industry they were active. Our confrontation of the tax register with city accounts revealed that the vast majority could be identified as being employed in construction works (cfr. 3.3 In search of building labourers and entrepreneurs). We have therefore assigned all *manouvriers* to said sector. Heupgen, "Le rôle de la taille."

[335] De Meyer, "De sociale strukturen te Brugge in de 14de eeuw," table VI.

[336] Heidi Deneweth, "Een demografische knoop ontward? Brugse bevolkingscijfers voor de vroegmoderne tijd," *Handelingen van het Genootschap voor Geschiedenis* 147 (2010): 17-19.

whole since it encompasses a working class area (Our Lady's *zestendeel*), an industrial district (Saint-James' *zestendeel*), and a more cosmopolitan ward with merchants and financiers (Saint-Nicholas' *zestendeel*).[337] Moreover, the relative contribution of the three wards closely matches its demographic importance (together they contributed 52.0% of the total tax and encompassed circa 58.1% of the population).[338] A similar study was conducted by Antoine Zoete for the small town of Diksmuide. He identified the occupation of some 300 individuals and their fiscal position in seventeen tax records between 1441 and 1460.[339] We have only included the records for the year 1442-43 because it was one of the most inclusive taxes and because Zoete only focused on the households who appeared in the first register. As we progress in time, his data thus becomes more skewed towards older and established families, leaving out information on the trade of immigrants and younger people.

Before we can proceed to the results, we should point out two important discrepancies in Table 3.2. The first one is of a more technical nature. As readers who are familiar with the material at hand may notice, the figures for the size of the building industry do not seem to match with those reported in other studies using the same sources. This can be attributed to the number of occupations that are grouped under the building industry. Although scholars rarely discuss the issue explicitly, they often use very different categorizations. For example, David Herlihy preferred to group occupations based on the raw materials used, such as wool, fur, wood and stone, or metal.[340] In contrast, Ingrid De Meyer made classifications based on the product (e.g. cloth makers versus cloth finishers) and nature of the work (production, service, or trade).[341] As a result, wholesalers of stone would be included in the building industry according to the first method but not according to the second. To make any comparison viable, a consistent categorisation is thus needed. In this section, we have opted to define the building industry rather narrowly. In function of our main goal, to test the representativeness of wage series, and in line with the methodology of Blondé and Hanus, we only included those occupations that were primarily active in construction works and depended on their manual labour to earn a living. This largely corresponds with the occupations included in our wage series of Chapter One: masons, diggers, carpenters, roofers, plasterers, etc. Examples of trades that are commonly associated with the sector but are excluded in this analysis, are smiths, because they often produce a variety of ironworks that are used outside construction, and wholesalers, because they rely foremost on their capital

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[337] Stabel, *A Capital of Fashion. Guilds and Economic Change in Late Medieval Bruges*, 143-46.
[338] De Meyer, "De sociale strukturen te Brugge in de 14de eeuw," 11.
[339] Zoete, *De beden in het graafschap*, 206-19, Appendix VII.
[340] Herlihy and Klapisch-Zuber, *Tuscans and their families*, 127.
[341] De Meyer, "De sociale strukturen te Brugge in de 14de eeuw," 18-24.

and trade network for their income.[342] A full overview of which occupations we assigned to which sector can be found in Appendix 3.1. Unfortunately, the source material does not allow us to differentiate between different skill levels like Blondé and Hanus did for sixteenth-century 's Hertogenbosch by analysing masons, carpenters, and unskilled labourers separately. References to unskilled labourers by medieval officials are rare and, aside from diggers, it is often impossible to determine in which sector they were active. Grouping the data per specific occupation would result for most cities in too small sample sizes to be representative (N<10). For now, we simply lump all construction workers together, but the next section will address the issue through an alternative methodology.

The second discrepancy relates to the relative size of the building industry in both regions. The sector seems to be two to three times larger in the Southern Low Countries compared to the Republic of Florence (on average, 14% of all identified occupations were related to constructions works in the former region versus 4.8% in the latter). This is odd given that the industry is characterised by rather uniform techniques across premodern Europe and given that the demand for building labourers is rather inelastic. Grand institutional or public projects may temporarily increase the amount of work, but the vast majority is conducted in the private market, namely the construction of homes. Since housing is a basic need, fluctuations in the sector are usually limited compared to other industries. Indeed, the figures for Florence show relatively little variance over time and the figures within one region are rather comparable as well (see Table 3.2). The structural difference between the Southern Low Countries and the Republic of Florence can be partly explained by the underrepresentation of unskilled building labourers in the main source for the latter region. Although this group is generally recorded less often than their skilled colleagues in most taxation records, they are completely absent from the database of the *catasto* of 1427 because it never specifies the sector in the case of manual labourers. As a result, unskilled work represents only 4.3% of all identified building occupations in the entire sample for the Republic compared to 14.1% in the case of Flanders. In the extreme and unlikely case that all unspecified manual labourers of the 1427 *catasto* worked in construction, the average share of the sector in the total number of identified occupations would increase from 4.8% to 6.9%.[343] While this helps to bridge some of the gap between the two regions, the difference remains substantial. We therefore introduce a second and more substantial explanation, namely the location of residence of skilled construction workers.

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[342] For instance, De Meyer assigned farriers, kettle makers, and needle makers to the building industry as they were all smiths even though their products would rarely have been used in construction. Ibid., 19.

[343] See the references to "manovale" in Herlihy and Klapisch-Zuber, *"Online Catasto of 1427."*

In the Southern Low Countries, the majority of (semi-)skilled craftsmen, who make up the bulk of households with identified occupations, lived in cities. In many cases, citizenship was officially required to start an apprenticeship and/or become a member of a guild.[344] Guilds dominated the urban labour market and, depending on the city's political clout, also dictated working conditions in the hinterland. For example, they prohibited employers to hire non-members, the so-called unfree craftsmen, unless there was a severe labour shortage (see the example of Antwerp in 2.1 Pick a Number). Moreover, the wages of unfree craftsmen were well below those of affiliated craftsmen.[345] Given these severe economic disadvantages for non-members and given that citizens were expected to have their residence in the city lest they lose their statute, craftsmen would have felt compelled to live in cities. In stark contrast, many building labourers in the Republic of Florence had their residence in the countryside, just outside the capital. Membership lists of the *Arti dei Maestri di Pietra e di Legname*, the guild for stone- and woodworkers, show that both in 1358 and 1465 some 440 craftsmen lived in the city. If we confront this figure with the total number of assessed households in the closest tax registers, the building craftsmen account for 4.4% à 5.9% of the total population, which is comparable to the results reported in Table 3.2. In other words, the (semi-) skilled labourers are not underrepresented in our Florentine samples. The remaining craftsmen have to be sought outside the city. Another list, from 1391, shows that the *Arti dei Maestri* counted 915 members in total. If the number of craftsmen in Florence remained relatively stable, this suggests that about half was living in the *contado* (475 craftsmen or 52.0%). Evidence from the sixteenth-century *Fabbricanti*, a new conglomerate of guilds that incorporated the old building guild, confirms this geographical distribution.[346]

In the Republic, citizenship was not a requirement to become a guildmember. A law of 1344 even allowed masons and carpenters from outside the state to practice their trade. The grip of the *Arti dei Maestri* on the organisation and regulation of the building industry was weak compared to its counterparts in the Southern-Low Countries. As one of the Minor Guilds of Florence, it had little say in the urban government. In fact, the political elite severely hindered the development of the *Arti dei Maestri* since it prohibited the establishment of multiple guilds related to the sector. In Europe, carpenters and masons commonly had their own organisation. In Florence, all these craftsmen were grouped together even though they often

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[344] Sosson, *Lest travaux publics de la ville de Bruges. XIVe-XVe siècles.*, 137; Tineke Van Gassen, "Sociale mobiliteit binnen de ambachten van de metselaars en timmerlieden in het 15de-eeuwse Gent," *Handelingen der Maatschappij voor Geschiedenis en Oudheidkunde te Gent* 66 (2012): 8.

[345] Etienne Scholliers, "Vrije en onrvije arbeiders voornamelijk te Antwerpen in de 16de eeuw," *Bijdragen voor de geschiedenis der Nederlanden* 11 (1956).

[346] Goldthwaite, *The Building of Renaissance Florence: An Economic and Social History*, 249-72.

had conflicting interests and agendas. As a result, very little rules and restrictions seemed to have been implemented outside the usual stipulations on fair competition. With the freedom to choose residency, the countryside offered some interesting opportunities for building craftsmen. The *contado* boosted several quarries of *pietra serena* (gray sandstone) and kiln ovens to produce bricks and burnt lime.[347] As such, employment was more abundant in the countryside of Florence than it was in that of the Southern Low Countries, where natural resources were scarce.[348] If we account for the residential pattern and the missing unskilled workers, the difference between the two regions becomes minimal: doubling the earlier adjusted estimate for the Republic (from 6.9% to 13.8% of identified occupations), returns a figure that is nearly identical to the Flemish average for the building industry (14% of identified occupations). Although the initial discrepancy has thus been resolved, the difference between the samples of construction workers contained in the sources remains important. The underrepresentation of unskilled workers and the exclusion of craftsmen in the countryside may overestimate the fiscal position of the sector in the Republic of Florence because both groups were generally poorer than their (semi-)skilled colleagues in the city.[349] In this sense, the Florentine sample is less random than that of Flanders.

Now, let us turn to the results of the tax records. How representative are the labourers of the building industry for other groups in society? Figure 3.1 shows the distribution of their fiscal position in the assessments with the help of box plots. The lower line represents the range of percentiles to which the bottom quartile of the labourers belonged, while the upper line does the same for the upper quartile. The coloured rectangles encompass the distribution of the middle half with the median depicted as a solid line, marking the boundary between the second and third quartile. In general, it appears that medieval construction workers belonged to the lower-middle classes of society (with Q2-Q3 belonging to P20-P60 of the wealth distribution). The median household in the industry falls below the median wealth reported by tax records (most commonly in the range of P30-40). If we compare the fiscal position of construction workers to those in other sectors, the picture is identical. They rank rather low on the social ladder though not entirely at the bottom as workers in other sectors, such as textile production, services, or transportation, were usually less wealthy (see Appendix 3.2 for the fiscal position of all sectors in the three capitals). The only significant exception is Pistoia, where the position of Q1-Q3 is well above the levels we observe in other cities. This is partly

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[347] Ibid.

[348] Sosson, *Lest travaux publics de la ville de Bruges. XIVe-XVe siècles.*, 65-114.

[349] For the comparison of the average wealth between town and countryside, see Chapter Four.

FIGURE 3.1 THE FISCAL POSITION OF THE ENTIRE BUILDING INDUSTRY

A) The Southern Low Countries
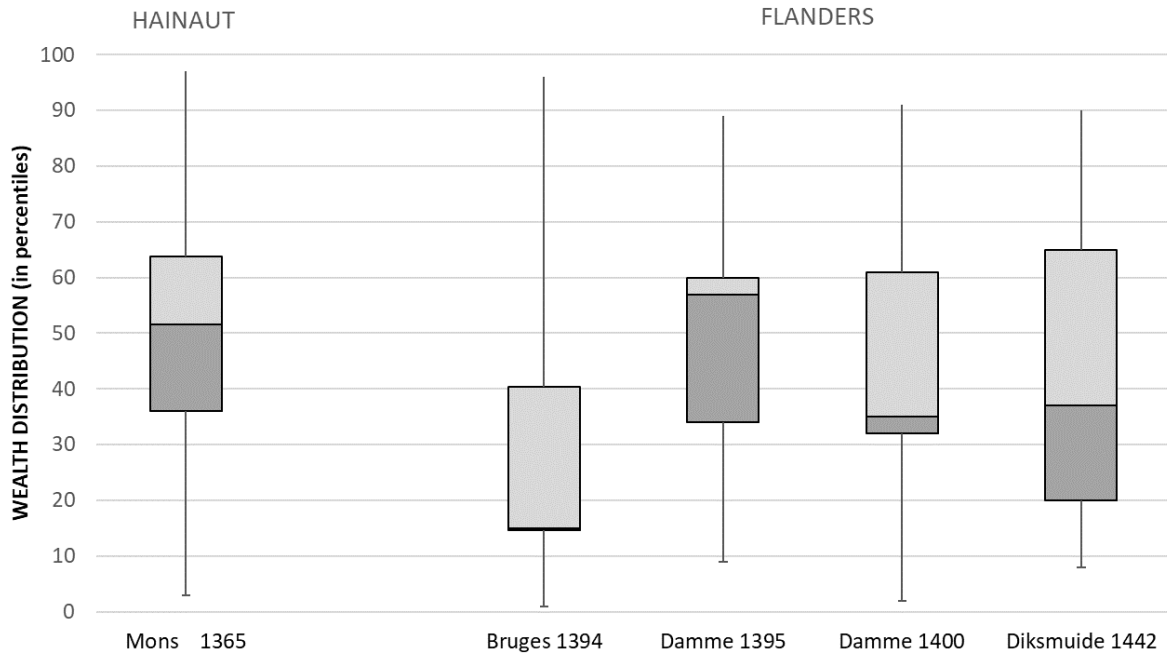
B) The Republic of Florence
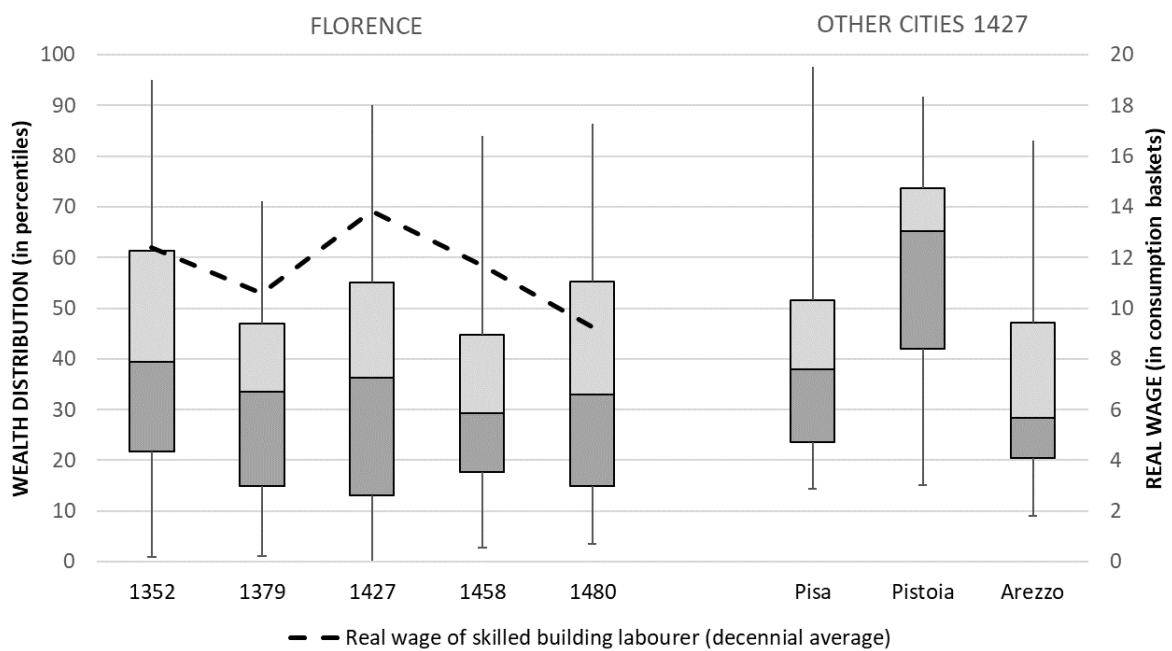
Sources: for tax registers, see Table 3.2; for Florentine real wages, see Chapter One.

due to the socio-economic structure of the city and partly due to the way officials reported occupations. Of all the Florentine cities included in Figure 3.1, Pistoia boosted the largest concentration of agricultural workers (12.6% of identified occupations compared to 10.9% in Pisa, 5.5% in Arezzo, and 0.9% in Florence). This group is generally less fortuned than others and may therefore enhance the relative position of the building labourers when their numbers are greater in one locality. Despite peasants being the second most important trade in Pistoia, their average wealth was the second lowest.[350] In addition, and perhaps more importantly, officials of this city were less inclined to note down the trade of less wealthy households than their colleagues did in other cities. For the lowest quartile of the distribution, occupations were recorded only in 28.9% of the cases whereas this figure increases steadily to 47.8% for the richest quartile. Conversely, officials in Pisa mentioned occupations of the poorest families in 65.1% of the assessments compared to 48.1% for the last quartile. Combined with the low number of observations, it is highly likely that the results for Pistoia are not entirely representative for the fiscal capacity of its entire building industry.

At the other end of the spectrum, building labourers in Bruges seemed more destitute than elsewhere. Again, the exceptional situation can be primarily attributed to a bias in the identification of occupations. In this case, the trade of households was not listed by officials but was assigned in the 1970's by Ingrid De Meyer who cross-referenced the tax data with institutional accounts (cfr. supra). According to her, the identified households clearly belonged to the richest part of society.[351] Strangely enough, the publication of her data in a second volume does not support this remark at all. In fact, the median quote of taxpayers with an assigned occupation falls significantly below those without one.[352] A confrontation of the fiscal position of workers in different sectors in Bruges and the other capitals, namely Mons and Florence, reveals that this downward bias is consistent across the entire sample provided by De Meyer (see Appendix 3.2). In this sense, the difference between Bruges and the other cities is not as great as Figure 3.1 makes us believe. Here too, the wealth of building labourers was somewhat below the levels observed for other sectors, but still above that of the more proletarian textile industry.

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[350] Herlihy, p 129

[351] "We should do well to remember that the two thirds of unidentified taxpayers were probably all poor unskilled labourers whose ordinary life did not leave any trace in the archival records.[Translated from Dutch]" De Meyer, "De sociale strukturen te Brugge in de 14de eeuw," 78.

[352] In our opinion, the error comes from dividing the data in four wealth classes based on the number of quotes instead of the number of tax payers. She equates the lowest class with "poor unskilled labourers" but it contains 83.2% (!) of the total households. Such a large group is simply too diverse to put a single label on. For the data, see: Ingrid De Meyer and W. Vanderpijpen, "De sociale strukturen van de St.-Jakobs-, St.-Niklaas-, en O.-L.-Vrouwzestendelen in Brugge in 1394-1396," ibid., Standen en Landen (1972).

While a general picture about the fiscal capacity of the industry can thus be deducted from the different tax records, the above cases also show that the identification of occupations is often problematic, even when a significant share of the population is included in the sample. Therefore, if we want to check if the evolution of wages is mirrored by changes in the fiscal position of building labourers, we need multiple tax registers for a single community with a relatively consistent administration. As mentioned before, this is only the case for the city of Florence. Figure 3.1 confronts the distribution of wealth of construction workers with the corresponding decennial average of their real wage. Given that Florentine officials made very few references to unskilled labourers (cfr. supra), we have opted to only include the typical remuneration for carpenters and masons (see Chapter One). Remarkably, the relative evolution of the industry seems to correspond rather well with the trends in real wages until 1458. The median level of wealth changes accordingly, albeit it doesn't seem to increase as much as what we would expect between 1379 and 1427 based on the absolute level of remuneration. Trends for the third and fourth quartile as well as the upper part of the second quartile follow a similar pattern. Only between 1458 and 1480 do real wages and the fiscal position display an inverse trend. Except for the lowest part of the first quartile, the relative wealth of construction workers was increasing whereas remuneration was falling rapidly (from 11.7 consumption baskets to 9.3 baskets or -20.5%). However, we should remember that the sample for 1480 was the smallest of our entire data set (N=14) so it might not be representative for the industry at large.

The findings for the city of Florence seem to underscore our initial hypothesis. The results of Blondé and Hanus can be extrapolated to the medieval period: where the rapidly declining wages of the sixteenth century resulted in a declining fiscal position of wage workers in 's Hertogenbosch, the Golden Age for labour conversely resulted in their ascent of the fiscal ladder in fourteenth- and fifteenth-century Florence. Both cases suggests that the evolution of daily wages had a strong impact on the total wealth of building labourers, but not on that of other classes given their relative stability in tax distributions. For most of society, the increase in living standards may have been far less outspoken. Nevertheless, our findings are far from conclusive. Most importantly, it remains unclear who is driving the relative evolution we just observed for the Florentine building industry. Until now we have treated all masons, carpenters, etc. as equals. In reality, they were far from a homogenous group. Among them, we find unskilled labourers without permanent employment, big contractors who managed several construction sites at once, and anything in between. Accordingly, for many tax registers, the range of wealth owned by building labourers is almost as great as the wealth found in the entire distribution. For example, in the tax register for Mons in 1365, we find the carpenters Jehan Lesquair and Jehan Maissart at the very bottom of the socio-economic ladder (P3) whereas their colleague Pierre le fils Aubry was one of the top

contributors (P97). The wealth of the latter was estimated to be more than thirty times greater than that of the former two (the quote of Pierre was 1,200 d. tor. versus 36 d. tor. for each Jehan). Similarly, in Florence in 1427, the carpenter Manno Benincasa Mannucci was 258 florins in debt (P1) whereas the net worth of his colleague Manetto Masino was 1,758 florins (P90). At the end of the 1970's, such observations ultimately provoked historians to critically reassess the usefulness of occupational stratifications as a proxy for social hierarchies. After two decades of largescale projects and a multitude of scholars, such as David Herlihy or Ingrid De Meyer, painstakingly cross-referencing thousands of records, the methodology didn't seem to return the expected result. Although other historiographical and political reasons also played a role (see Chapter Four), this line of research was consequently abandoned.[353]

Table 3.3 explores the issue statistically for our sample of tax records through the Theil index, calculated for the two capitals with complete geographical coverage. The index assesses to what extent the distribution deviates from perfect equality (no differences between households) by measuring the ratio between each data point and the mean of the distribution, multiplied by its natural logarithm. Unlike the Gini coefficient, another measure which we will use in Chapter Five, it is not a relative measure that can easily be compared across different distributions and its interpretation is not intuitive. Instead, the Theil index returns a figure between 0 and infinity, whereby a higher number stands for more inequality and the maximum is defined by the size of the population (i.e. the natural logarithm of the total number of observations). The main advantage of the measure compared to the Gini index is its ability to decompose inequality by mutually exclusive sub-groups of the population. Put simply, the Theil index can inform us how much of the differences in wealth is exactly explained by occupational sector. Table 3.3 demonstrates that the inequality within each sector is, as scholars have rightfully pointed out, much greater than the general difference between them. On average, approximately two thirds of the total inequality in the tax records for the capitals can be attributed to different wealth levels between taxpayers with a similar trade. Occupational titles are thus a poor indication for the economic position of households. They obscure a very diverse group of people.

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[353] Eric Vanhaute, "Het debat dat er geen was: sociale stratificatie in de geschiedschrijving," in *Docendo discimus : liber amicorum Romain van Eenoo*, ed. Jan Art and Luc François (Gent: Academia Press, 1999), 233.

TABLE 3.3 DECOMPOSITION OF INEQUALITY FOR OCCUPATIONS IN CAPITALS

Sector	*Florence 1427*		*Mons 1365*	
	N	*Theil index*	*N*	*Theil index*
Agriculture and fishery	50	0.0024	78	0.0856
Building and raw materials	288	0.0180	192	0.0246
Clerks and officials	693	0.1240	28	0.0090
Durables	317	0.0516	152	0.0162
Entertainment	8	0.0003	5	0.0000
Fashion	568	0.0667	147	0.0174
Food processing	271	0.0284	99	0.0188
Health	356	0.1093	4	0.0010
Leather production	28	0.0016	8	0.0033
Luxury	338	0.0656	31	0.0062
Military	150	0.0160	48	0.0047
Money	83	0.1173	3	0.0007
Retail and sales	256	0.0529	75	0.0059
Services	231	0.0181	21	0.0011
Textile production	1,110	0.1117	193	0.0510
Trade	420	0.4216	47	0.0463
Transport	39	0.0029	30	0.0016
Within-sector		1.2086		0.2932
(% Contribution to total)		64.4%		72.1%
Between-sector		0.6690		0.1133
(% Contribution to total)		35.6%		27.9%
Total	5,206	1.8776	1,161	0.4065

Notes: 0-values were assigned a value of 0.0001 (1/10,000 of the next quote) to remedy the problem of calculating logarithms; Theil index only calculated for households with known occupations.

Sources: see Table 3.2

For the building industry in specific, Table 3.3 indicates that the inequality between households was not as articulated as in the textile production or trade. Nevertheless, large differences existed within the sector. For the Southern Low Countries and the Republic of Florence, detailed studies into the organisation of the building industry and the social profile of its actors exist. Most famously, Jean-Pierre Sosson explored the topic for Bruges, while Richard Goldthwaite discussed the matter for Florence. In the former city, the sector, like many other in the Southern Low Countries, was dominated by the guild system. A handful of elite masters, labbeled *"un syndicat des patrons"* by Sosson, managed to accumulate important offices in the guild and in the urban government. Information on their identity is often fragmentary, but they were rarely humble artisans who worked for a wage. Instead, they often figure as large contractors hired by the urban authorities or as major suppliers of construction materials. In this sense, the accumulation of political and economic capital was a self-reinforcing process. As the largest entrepreneurs in the guild, they were often elected to lead their colleagues. In turn, they could use this power to secure the best opportunities for themselves and erect restrictions for any potential competitor. Indeed, this small group closed its ranks through various means. For example, the total cost to become a master was twenty to forty times higher for outsiders than it was for sons of already established masters, depending on the period and specific guild.[354] A register for the masons' and stonecutters' guild in the neighboring city of Ghent reveals that each member had on average 2.2 affiliated relatives at the end of the fifteenth century. At the same time, outsiders constituted a small minority of new members in the carpenters' guild (between 1475 and 1500, 92 out of 109 newly registered members were sons of masters).[355] Furthermore, they used their connections to monopolise large public building projects. Most strikingly, just two master masons, J. van Oudenaede and M. van Luevene, were responsible for 71.9% of all contract work recorded in the city accounts of Bruges between 1388 and 1442.[356] Below the *patrons*, we find a larger group of independent masters who ran much smaller enterprises. They would perform the work themselves, sometimes as a wage worker, or have a few journeymen and apprentices on the pay roll. Occasionally, they were subcontracted by the larger entrepreneurs. Although their participation in governing the guild was often restricted to a single office during their lifetime, they profited from the many privileges the elite had put in place for their shared

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[354] Sosson, *Lest travaux publics de la ville de Bruges. XIVe-XVe siècles.*, 135-41; Johan Dambruyne, "Proletarisering in de corporatieve wereld? De doorstroommogelijkheden van gezellen in Vlaamse en Brabantse ambachten ca. 1450-1650," *Revue belge de Philologie et d'Histoire* (2005): 371-80.

[355] Van Gassen, "Sociale mobiliteit binnen de ambachten," 7-12.

[356] Sosson, *Lest travaux publics de la ville de Bruges. XIVe-XVe siècles.*, 193-99.

statute of master. As such, the difference between small-scale, independent masters and the *patrons* was not as great as between the former and the journeymen.[357]

Journeymen in the Southern Low Countries had little say in the guild and were dependent on others for their employment even though their skills wouldn't be much different from that of the majority of masters. Without connections in the guild or financial aid of relatives and friends, they would have little hope to rise in the ranks given the many social and economic barriers to acquire the master's title. While some scholars have claimed that these barriers became steeper during the fifteenth and sixteenth century, leading to an ever-increasing proletariat, others have taken a more nuanced stance.[358] For example, Johan Dambruyne believes that the high or increasing entrance fees were not as problematic as often portrayed since they followed economic conjecture and guilds provided modalities to help those without insufficient capital, such as loans or spread payments.[359] Notwithstanding these practices, mastership remained difficult to aspire, especially in the building industry. Entrance and matriculation fees were only part of the investment. New masters also had to acquire tools, a shop, a network of customers, etc. In addition, construction work requires a lot of labour with little oversight. As a consequence, the opportunities for entrepreneurship are limited compared to the size of the labour force. It is no coincidence that of all the guilds, the carpenters' and masons' guilds boosted the highest discrepancy between the number of masters and the number of journeymen in the city of Ghent in 1738, the first time we have exhaustive data on this matter: for every master there were on average 6.7 journeymen in the aforementioned guilds versus a global ratio of 1 to 0.7.[360]

At the bottom of the guild hierarchy, we find the apprentices. Their status was only temporary, encompassing between one and six years depending on the trade, during which they received boarding and a small wage from the master who trained them. Afterwards, they joined the ranks of journeymen as full members of the guild. Most of the apprentices were young, between twelve and fifteen years, so they rarely figure as the head of households in tax

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[357] Christopher Friedrichs, "Capitalism, mobility and class formation in the early modern German city," *Past & Present* 69 (1975): 27-28.

[358] See for example the evolution of ideas in: Charles Tilly, "Demographic origins of the European proletariat," in *Proletarianization and Family History*, ed. D. Levine (Orlando: Academic Press, 1984); Hugo Soly, "Proletarisering in West-Europa, 1450-1850," in *Balans en perspectief. Visies op de geschiedwetenschap in Nederland*, ed. F. Van Besouw, et al. (Groningen: Wolters-Noordhoff, 1987); Christopher Friedrichs, *The early modern city, 1450-1750* (New York: Routledge, 1995); Dambruyne, "Proletarisering in de corporatieve wereld?."; Bert De Munck, *Guilds, Labour and the Urban Body Politic. Fabricating Community in the Southern Netherlands, 1300–1800* (New York: Routledge, 2017).

[359] Dambruyne, "Proletarisering in de corporatieve wereld?," 381-85.

[360] *Corporatieve middengroepen : aspiraties, relaties en transformaties in de 16de-eeuwse Gentse ambachtswereld* (Gent : Academia press, 2002), 755-56.

records.[361] More importantly for our analysis is the existence of a large, unskilled labour force outside the guild structure. They had no formal training and often combined an oddity of jobs to make ends meet. For instance, Andriu le Wint helped in the construction of a road in fourteenth-century Mons whereas the tax register of 1365 identifies him as a tailor. Similar examples include a cobbler, a fruit seller, and a secondhand clothes merchant. However, the city accounts of the Southern Low Countries (see 3.3 In search of building labourers and entrepreneurs) also reveal many unskilled labourers that were mostly or even fully employed in the building industry, aiding several different masters and journeymen in their tasks throughout the entire year. Whereas journeymen were still protected by their corporate membership, these workers were unorganised and were at the mercy of the terms stipulated by their employers.

As we mentioned earlier, the building guild had far less power in the city of Florence. As a result, regulation was limited and a formal hierarchy between different actors was largely absent within the *Arti dei Maestri di Pietra e di Legname*. Although labels such as master, apprentice and worker existed, they carried no specific cultural, social or juridical notion. Everybody, even foreigners, were welcome to start up a construction business and hire labourers after they had proven their training and after they had acquired membership to the guild. Matriculation fees and annual dues were low in comparison to the Southern Low Countries, with several possibilities to gain reductions and to spread payments. Uncommon for medieval Europe, there were little rules in place that prohibited the combination of multiple occupations, such as masonry and stonecutting. Moreover, there was not a select group of elite masters that dominated the building scene. The electable offices in the *Arti dei Maestri* were not controlled by the large entrepreneurs. Instead, officials displayed very diverse socio-economic backgrounds, both in terms of wealth and occupation. They included wallers, stonecutters, woodworkers, and kilnmen. Only in very rare cases did one family provide more than three generations of office holders. Far more characteristic than their economic features was their political connection to one of the oligarchic families that sought to control the Republican government. In a complex system, candidates for Florentine public offices were chosen at random from a bag containing the names of all eligible men. This electoral list was however decided beforehand within the different guilds. In this sense, it was fundamental for political patrons to manoeuvre their clients in key positions. Contrary to the Southern Low Countries, these patrons did not share a clear economic link with the

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[361] Sosson, *Lest travaux publics de la ville de Bruges. XIVe-XVe siècles.*, 135-41; Tineke Van Gassen, "De ambachten van de metselaars en timmerlieden in laatmiddeleeuws Gent" (Master's thesis, Ghent University, 2012), 34-37.

building industry. The need to intervene in the practical workings of the sector was therefore minimal.[362]

According to Richard Goldthwaite, the large degree of freedom facilitated social mobility and inspired the kind of artistic creativity we came to associate with the Florentine Renaissance. On the other hand, it gave building labourers very little protection against opportunistic employers, offered only limited representation in the government, and lacked the social security of belonging to an established community. [363] However, similarities between the two regions are more important than their differences. Despite the absence of a formal hierarchy in the *Arti dei Maestri*, in practice, the same variety of workers would have been apparent in Florence as in the Southern Low Countries. In his discussion on the organisation of work, Goldthwaite described the very same types of contracts we discussed for Bruges. At the top, a few ambitious entrepreneurs took on large building projects for which they provided all materials and labourers. Even in a very open system, the local nature of the building industry, its limited scale, and its relatively stagnant technology prevented the emergence of big speculators that would eventually dominate the sector in the early modern and modern period. At the bottom, a large labour force continuously looked for opportunities to be hired. In between the two, we find a group of artisans who accepted small-scale contracts, paid for the duration of the labour or per task.[364] Boundaries between these groups might have been more permeable in the Republic, but the variety of income profiles is identical to those found in the Southern Low Countries. Here lies the fundamental division of building labourers into two categories: one group was highly dependent on wages, while the other (also) relied on its access to capital. The first one includes big contractors, suppliers and independent masters. The second one encompasses journeymen, dependent masters, and unaffiliated workers. Thus, if we want to check the representativeness of wage series vis-à-vis the diverging evolution of the value of land and capital, we need to retrace the fiscal position of these groups separately. To do so, we will need to develop a different methodology than we have employed so far.

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[362] Goldthwaite, *The Building of Renaissance Florence: An Economic and Social History*, 242-86.

[363] Libraries have been filled about the question if such an open system was in the end more beneficial to the whole of society compared to the more exclusive guild structures found in Northwest Europe. See for example the recent debates in Sheilagh Ogilvie, *The European Guilds: An Economic Analysis* (Princeton: Princeton University Press, 2019); Maarten Prak et al., "Access to the Trade: Monopoly and Mobility in European Craft Guilds in the Seventeenth and Eighteenth Centuries," *Journal of Social History* 54, no. 2 (2019); Bas van Bavel, "Wealth inequality in pre-industrial Europe: What role did associational organizations have?," *The Economic History Review* 75, no. 3 (2022).

[364] Goldthwaite, *The Building of Renaissance Florence: An Economic and Social History*, 124-70.

3.3 In search of building labourers and entrepreneurs

To test the validity of their initial results for masons, carpenter and unskilled workers, Bruno Blondé and Jord Hanus supplemented the occupational data provided by the tax registers with references to construction workers contained in the city accounts of sixteenth-century 's Hertogenbosch. Most importantly, they identified a dozen of wage labourers who were fully employed by the urban government (>250 days per annum). If wage series would be representative for anyone, it would be for this group. Cross-referencing accounts can help us to circumvent the many problems we encountered with the occupational references made by officials and allows us to make the much-needed distinction between entrepreneurs and wage labourers; however, this methodology of Blondé and Hanus cannot be easily replicated with our source material.

The most logical application would be the city of Florence given the availability of comprehensive registers for a long period. Regrettably, the way names were recorded severely hinders the identification of building labourers. For the lower classes, which included the majority of wage workers, the tax registers only mention the first name of the individual and the first name of his or her father. For example, in the *catasto* of 1427, 63.0% of all households in the capital carried no surname. Their wealth was on average more than four times lower compared to those with a family name (341 fl. versus 1,524 fl.). As a consequence, one in three members of this group (34.2% of the lower classes) had identical names to at least one other individual in the city. The problem gets even worse when we realise that roughly half of the construction workers lived in the *contado* (cfr. 3.2 Occupational structure and the building industry). Taking this area into account, the number of persons without a surname now increases to 83.1% of the total and about half of them had no unique combination of names (48.5%)! Most strikingly, the name "Antonio Giovanni" figures no less than 177 times in the *catasto* for Florence and its hinterland.[365] In other words, cross-referencing building accounts with tax records would prove extremely difficult. In most cases, we won't be able to identify the mentioned building labourer with any reasonable degree of certainty.

The situation is completely opposite in the Southern Low Countries. Here, surnames were common and show a great variety. For instance, only 3.2% of all listed individuals had no surname in the tax register for Mons in 1365. Wealth differences between the two groups were minimal (households with surnames were quoted on average 215 d. tor. versus 267 d. tor. for those without one). Overall, 97.2% carried a unique combination of names. The most common name was Jehan de Braibant, which figures just four times in the entire register.

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[365] Herlihy and Klapisch-Zuber, "Online Catasto of 1427."

Whenever two individuals did share a combination of names, the officials often included additional information related to occupation (cfr. supra), age (e.g., "the old" or "the young"), familial ties ("son of"), or physical appearance ("the great" or "the blind"). Furthermore, the link between city accounts and tax records is more direct than in the Republic of Florence. In this last region, the extensive and recurrent nature of the *estimi* and *catasti*, levied over a vast area, required specialised offices to oversee and record the taxation. For example, a commission of ten citizens was appointed each year by lottery to conduct the four surveys between 1427 and 1434.[366] In a similar vein, maintaining the public buildings and infrastructure across the Republic demanded separate administration, namely the officials of the Tower. Other commissions were also set up for specific construction works, such as the *Opera del Duomo*, which oversaw the building of the cathedral from 1296 on.[367] The recording of construction workers is therefore fragmented across different offices and is never found in the same archival fonds as the poll taxes. In contrast, medieval cities in the Southern Low Countries had a more limited jurisdiction and, consequently, less complex administration. In most cases, city accounts bundled the details for all kinds of revenues and expenses together. As a result, payments for building wages, materials, and contracts often figure in the same source as the tax register, recorded by the same clerk(s). The distortion by administrative practices or the personal writing style of officials is thus limited. For skilled workers, the probability of correct identification is also enhanced thanks to the unity of place. After all, most of them lived inside the city given the strict requirements for guild membership (see 3.2 Occupational structure and the building industry). If any artisan from a different location was contracted, mostly for tasks that required skills beyond the level found in town, the accounts usually mention his origin. For example, the aldermen of the small town of Ninove hired Willem den Potghieter, "a master from [the nearby city of] Aalst", to oversee the construction of new rain gutters for the Butcher's Hall.[368]

Whereas the Southern Low Countries provide us with the best opportunity to link the individuals mentioned in the building accounts with those in the poll taxes, it lacks long-term series of comprehensive tax records for individual cities. Due to a bombardment during the Second World War, most city accounts and poll taxes for the County of Hainaut have been lost. Luckily, some exceptionally early sources for Mons have survived the incident and others had been published before the outbreak of the war (see Table 3.4). Tax records encompassing

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[366] *Tuscans and their families*, 10.

[367] Christopher Cribaro, "Urban planning and administration in Florence: 1400-1600" (Doctoral thesis, University of Nebraska, 1980).

[368] City of Ninove, Stadsrekeningen van het Graafschap Vlaanderen, Algemeen Rijksarchief Brussel, Brussels, nr. 37082, fol. 14V.

the entire city are available for the years 1295 and 1365. The last one pertains to an aid granted to Count Albert of Bavaria to finance his war.[369] The first levy had a more particular cause: Count John of Avesnes allowed the citizens of Mons to free themselves of the feudal duty of *mortmain*, which was comparable to a heriot tax and forfeited the best movable possession of a deceased to his lord, in exchange for a one-time tax.[370] For citizens who owned a movable worth more than 30 lb. tor., a survey of the precise nature and value of such possessions has survived. For citizens with values below said threshold, only the proportionate tax is available. Even though the absolute figures are difficult to compare across these two lists, they can easily be combined to determine the relative position of households considering that one's movable wealth determined on which list he or she would appear. For the late thirteenth century, we only possess of some bigger contracts and a long list of suppliers of building materials. Building expenses were not recorded in detail in the city accounts until the 1320's.[371] In other words, we can only retrace the fiscal position of entrepreneurs in the records of 1295. This is regrettable since it doesn't allow us to assess the impact of the Black Death. To this end, we also include a less optimal poll tax from 1329 in our analysis. From at least 1283 on until the end of the Ancien Regime, all inhabitants of Mons were obliged to pay an annual fee at the feast day of Saint Rémi (1st of October), called *le droit de bourgeoisie*. In theory, every household had to contribute 36 d. tor., but in practice reductions were granted to the lower classes. In the records of 1329, about half of the taxpayers (52.4% of the total, excluding the poor) paid the expected full quote. For the bottom half of the distribution, we find no less than 13 different quotes. The variety allows us to determine the fiscal position of the latter group with sufficient precision. The uniform tax for the former group clusters very different wealth levels together. As we will see below, this is only an issue for the position of the entrepreneurs, for which we have earlier data (cfr. supra). In contrast, the vast majority of skilled and unskilled labourers paid one of the lower quotes (see Figure 3.2).

After 1365, poll taxes for the city of Mons only become available again in the sixteenth century for *le droit de bourgeoisie* or the seventeenth century for more traditional wealth taxes.[372] If we want to retrace changes between 1365 and 1500, we need to turn our attention to the County of Flanders. Here, many poll taxes have survived for this period. However, the

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[369] Heupgen, "Le rôle de la taille," 41-43.

[370] For a general introduction to and the demographic information contained in the lists, see De Keyzer, "Un instantané de la population." For the charters with the stipulations, see: Devillers, *Cartulaire des rentes et cens du au comte de Hainaut*, II, 272-85.

[371] Piérard, *Les plus anciens comptes*, 330-46.

[372] There exists another *le droit de bourgeoisie* for the year 1496-97 but it's unreadable due to its bad condition. The next one dates from 1524.

sources for individual cities are concentrated in time. On average, the interval between the first and last available medieval register only encompasses 18 years.[373] The only exception is the already mentioned town of Diksmuide, for which we have no less than 28 different taxes between 1390 and 1458. Upon closer inspection, only the data for 1406, 1442-43, and the 1450's contain a comprehensive number of households to be useable. Unfortunately, real wages were very similar between these dates (the difference between the minimum and maximum number of baskets was only 12.9% for both skilled and unskilled wages). Consequently, we wouldn't be able to determine the effect of changes in remuneration. To tap into the full potential of the rich archives of Flanders, we thus need to broaden our scope. Instead of focusing on a single locality, we combine the results for several cities. We restricted ourselves to the most comprehensive tax records for towns with more than 1,000 inhabitants or 250 households. Below this threshold, the economic nature of urban communities becomes difficult to discern from larger villages in the countryside and the number of construction workers would be too limited to be representative.[374] A full overview of the included communities and their sources can be found in Table 3.4. It includes both major cities with a regional or even international network, such as Bruges and Kortrijk, and small towns, such as Ninove or Eeklo, who mainly serviced its direct hinterland. The size of the community and the scale of the economy may influence the fiscal position of building labourers. However, a multivariate regression analysis doesn't reveal any significant differences between the included locations (see Appendix 3.3). This can be explained by the high degree of mobility by medieval building labourers. More ambitious artisans would move from one city to the next, in search of better opportunities. Wealthier communities attracted more talented or fortuned workers. Certainly, the absolute difference between the economic elite and the building labourers would be greater in, say, Bruges compared to Ninove, but the relative difference would be relatively similar.

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[373] Calculation based on the overview of communities with more than one fiscal register in Zoete, *De beden in het graafschap*, Appendix 13.

[374] Stabel, *De kleine stad in Vlaanderen*, 13-24.

TABLE 3.4 CONSTRUCTION WORKERS IN TAX RECORDS AND CITY ACCOUNTS OF THE SOUTHERN LOW COUNTRIES

Year	City	Taxpayers (households)	Population (households)	Fiscal categories	Workers in city accounts (N)	Workers in tax records (% of city accounts)
1295	Mons	967	1,142	92	63	31.7
1329	Mons	1,027	1,350	14	51	42.5
1365	Mons	1,660	1,745	48	288	58.3
1382	Bruges (St.-Jacob)	1,608	6,284 (city)	33	34	29.4
1394	Bruges (3 wards)	3651	6,284 (city)	99	23	26.1
1395	Damme	271	429	27	8	75.0
1399	Eeklo	532	448	38	79	43.0
1408	Ninove	371	429	16	53	37.7
1411	Oostende	611	611	18	90	50.0
1417	Eeklo	447	448	44	79	54.4
1440	Bruges (St.-John)	877	5,592 (city)	17	102	7.8
1440	Kortrijk	1,792	1,974	85	33	24.4
1442	Diksmuide	621	654	31	64	97.0
1457	Diksmuide	654	654	38	58	37.9
1473	Veurne	490	552	31	47	42.6
1477	Kortrijk	728	2406	38	132	12.1
Total		16,307			1204	44.9
Average		1,019	1,936	41.8	75.3	41.9

Notes: Population figures are based on the closest available estimate. Depending on the timing and demographic evolution between the taxation and this estimate, discrepancies may arise. For example, the number of households assessed in Eeklo in 1399 exceeded the total population deducted from a hearth census in 1469.

Sources: Droits de meilleur catel sur les habitants de la ville de Mons." In *Tresorie des comtes de Hainaut: Recette des mortemains*. Mons: Archives de l'État à Mons, 1295; "Le 3 sous dou jour Saint Rémi." In *Commune Mons. Section ancienne. Droit de bourgeoisie*. Mons: Archives de l'Etat à Mons, 1329; Heupgen, Paul. "Le rôle de la taille de Mons de 1365." *Annales du cercle archéologique de Mons* 55 (1937): 41-95; De Backere, Willem. "Pointingboek van de glavye: Sint Jacobszestendeel." In *Stadsrekeningen Annexe*. Bruges: Stadsarchief Brugge, 1383; Ingrid De Meyer and W. Vanderpijpen, "De sociale strukturen van de St.-Jakobs-, St.-Niklaas-, en O.-L.-Vrouwzestendelen in Brugge in 1394-1396"; "Rekening Van De Tresoriers Mattiis Van Mendonc, Jan Van Ghedezbeke. 25 December 1394 - 25 December 1396, 33545", Stadsrekeningen van het Graafschap Vlaanderen: Damme, Algemeen Rijksarchief Brussel, Brussels; De Smet, E. "Eeklose en Lembeekse belastingbetalers, einde 14e - begin 15e eeuw." *De Eik, driemaandelijks tijdschrift voor familiegeschiedenis Eeklo-Meetjesland* V, no. 2 (1980): 124-49; "Stadsrekening Ninove." In Registers van de Rekenkamer. Brussels: Algemeen Rijksarchief Brussel, 1408; "Stadsrekening Oostende." In Registers van de Rekenkamer. Brussels: Algemeen Rijksarchief Brussel, 1411; "Pointingboek wekelijkse pointing: St.-Jans-zestendeel." In *Stadsrekeningen Annexe*. Bruges: Stadsarchief Brugge, 1440; "Poorterslijst 1440." In *Poorters en buitenpoorterslijsten*. Kortrijk: Rijksarchief Kortrijk, 1440; Zoete, *De beden in het graafschap*, Appendix 7; "Stadsrekening Diksmuide." In Registers van de Rekenkamer. Brussels: Algemeen Rijksarchief Brussel, 1457; "Stadsrekening Veurne." In Registers van de Rekenkamer. Brussels: Algemeen Rijksarchief Brussel, 1473; "Stadsrekening Kortrijk." In Registers van de Rekenkamer. Brussels: Algemeen Rijksarchief Brussel, 1477.

For the Southern Low Countries in general, a second alteration to the methodology of Blondé and Hanus needs to be made. Contrary to those of sixteenth-century 's Hertogenbosch, the medieval city accounts employed here rarely contain enough information to identify fully employed construction labourers. Especially in smaller communities, the extent of public works is simply too limited to offer employment on a regular basis. We therefore propose an alternative way to determine the dependency of construction workers on wages. Whenever an individual supplied a single piece of building material, had a single assistant in service at one point in time, or was paid once by the task rather than the day, we consider him to be an entrepreneur. Only those who are exclusively hired on a daily basis are classified as wage labourers. To account for the differences in skill level and, by extension, in income, we have divided the group into unskilled and skilled labourers. Obviously, such a strict categorisation based on fragmented data is far from perfect. On the one hand, we may overestimate the extent of entrepreneurship. A carpenter who sold the aldermen an old beam he had recovered from a previous job is hardly a big supplier. A paver who hired a journeyman for a single day to finish the job in time, might not be a regular contractor. On the other hand, we may also underestimate the importance of independent masters. For most building labourers in the city accounts, we only have a glimpse of their total activities. Perhaps a mason usually oversaw big construction projects but took the opportunity to work directly for a few days for the urban government to expand his business connections. Indeed, Figure 3.2 shows that the wealth of some individuals diverged significantly from the median. However, for the middle of the distribution (Q2-3), the methodology is robust: there is little to no overlap between the three groups; the dispersion of wealth levels is limited, encompassing less than 24 percentiles of the total

distribution; and, lastly, the fiscal position of the three groups conforms to the hierarchy we described earlier for the building industry (see 3.2 Occupational structure and the building industry). At the very bottom, we find the unskilled and unaffiliated wage labourers (on average, Q2-Q3 belonged to P15-P35). The majority of skilled artisans, including journeymen and dependent masters, can be described as middle classes (P42-P60). Contractors and suppliers can generally be found at the top (P64-P89).

For every tax record, we consulted the building expenses in the city accounts for at least the previous, same, and subsequent year. In total, we cross-referenced the names of more than 1,200 constructions workers with wealth assessments of 16,307 households between 1290 and 1480. About half of them (44.9% of total) could be identified in both source types with certainty (see Table 3.4). This high success rate confirms our earlier remarks about the advantages of the sources for the Southern Low Countries. Data for individual communities were largely similar though some notable exceptions are present. The identification rate for the larger cities in the County of Flanders falls well below the average because the poll taxes are not as comprehensive as for other localities (see Table 3.4). The three registers for Bruges only pertain to a part of the city (one to three *zestendelen*) and the register for Kortrijk in 1477 only pertains to the upper part of the fiscal population. As a result, no unskilled wage labourers could be identified in the latter poll tax. Conversely, identification rates were much higher in those localities for which we already have a lot of occupational information thanks to scholars (Diksmuide) or tax officials (Damme and Mons). Specifically for Mons in 1365, we were able to identify a lot of unskilled wage labourers. The city accounts are incredibly detailed in regard to building expenses, listing all activities on a weekly basis. After linking the data to the poll tax, we were able to determine that the reference of "*manouvrier*", an unspecified manual labourer, recorded by officials for some households relates to unskilled wage labourers in the building industry. As such, the ones that hadn't figured in the city accounts could be added in our analysis.[375]

Overall, the data is spread relatively even across the different centuries (see Table 3.5). We only lack observations for the period between 1330 and 1365, albeit the number of identified building labourers is also low for the years 1290-1309 (except for entrepreneurs, cfr. supra), 1370-89, 1450-69, and 1470-90 (only unskilled labourers). While the results for these periods are less robust, they do provide us with some important spot checks. As is evident from Figure 3.2, they always fall in the expected range of Q2-Q3 based on the surrounding samples.

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[375] Even if we are wrong, the inclusion of the *manouvriers* doesn't impact the results given that their wealth distribution was virtually identical to the one we found for the unskilled wage labourers mentioned in the city accounts (the boundaries for Q1-Q4 were identical, only the outliers were slightly different).

TABLE 3.5 NUMBER OF IDENTIFIED BUILDING WORKERS PER PERIOD

Period	Unskilled labourers	Skilled labourers	entrepreneurs	Total
1290-1309	0	0	20	20
1310-1329	11	9	27	47
1330-1349	0	0	0	0
1350-1369	108	29	31	168
1370-1389	0	1	1	2
1390-1409	19	20	37	76
1410-1429	16	15	56	87
1430-1449	14	35	33	82
1450-1469	8	7	7	22
1470-1489	2	18	16	36
Total	178	134	228	540

Sources: see Table 3.4

In regard to the social bias, Table 3.5 shows the number of observations per type of construction workers. Due to our strict categorisation of wage labourers, we were less likely to identify manual labourers and dependent artisans in the sources. Again, a single reference to a different kind of activity, no matter how small in scope, already caused us to categorise the individual as an entrepreneur. Moreover, the higher average wealth of contractors and suppliers increased their chances of being included in poll taxes. The ratio between the three groups is therefore not indicative for the historic importance of wage labour. In reality and unlike the situation in other sectors, entrepreneurs constituted a small minority in the building industry (see 3.2 Occupational structure and the building industry).

Having established the limitations of the source material and the extent of our data, we can now confront the fiscal position of our three types of construction workers with the evolution of their real wages in accordance to the geographical location and the skill level (see Figure 3.2). At a glance, it is already clear that both series are highly correlated for the skilled and unskilled wage labourers but lack any coherence for the entrepreneurs. This last group is characterised by incredible stability across time. In the fifteenth-century County of Flanders, the median position of contractors and suppliers remains virtually identical (standard deviation of only 1.2 percentiles). Excluding the less representative periods of 1310-1329 and 1370-89 (cfr. supra), the largest change occurred after the Black Death. In Mons, the relative position of entrepreneurs fell between 2.3 and 10 percentiles for the second and third quartile while real wages for skilled building labourers increased more than twofold (from 2.7 consumer baskets in 1310-1329 to 6.9 baskets in 1350-69). For example, the big contractors Jehan Villain and Martin de le Joie were responsible for building and maintaining the new fortifications of the city in the 1290's. The *mortmains* revealed that they belonged to the

absolute top of the urban elite (P96 -99). Seven decades later, Jehan Liermite was contracted for similar work on the great tower. While still being a wealthy citizen, he didn't belong to the richest ten per cent (P87). In fact, most of his colleagues had lost connection to the top of the distribution compared to the previous century (in 1295, 40.0% of the entrepreneurs are found above the threshold of the 90th percentile versus only 16.1% in 1365). Such observations are in line with the idea of reduced building activity after 1300 and, again, after the Black Death. As we have seen in the previous chapter, the sudden rise in houses per capita and the decline in public building projects resulted in the relative decline of the industry during much of the fourteenth century in Bruges (see 2.3 Hire or fire). Wage labourers could offset the reduced demand for their services by higher wages, but for entrepreneurs higher remuneration primarily implied higher costs. After all, their income was more dependent on the profit margins of reselling materials and subcontracting workers. By the fifteenth century, building activity seemed to have picked up pace again in Bruges and remained relatively stable until the disruptive revolt against Maximilian of Austria (1482-1492). The fiscal data for the County of Flanders reveals that the entrepreneurs established themselves again firmly at the top of the wealth distributions. Real wages waxed and waned, but their position did not change.

FIGURE 3.2 THE FISCAL POSITION OF BUILDING WORKERS AND ENTREPRENEURS

A) Contractors and supplier

B) Unskilled wage labourers

X Average wealth   – – Real wage of unskilled building labourer (20-years average)

C) Skilled wage labourers

X Average wealth   – – Real wage of skilled building labourer (20-years average)
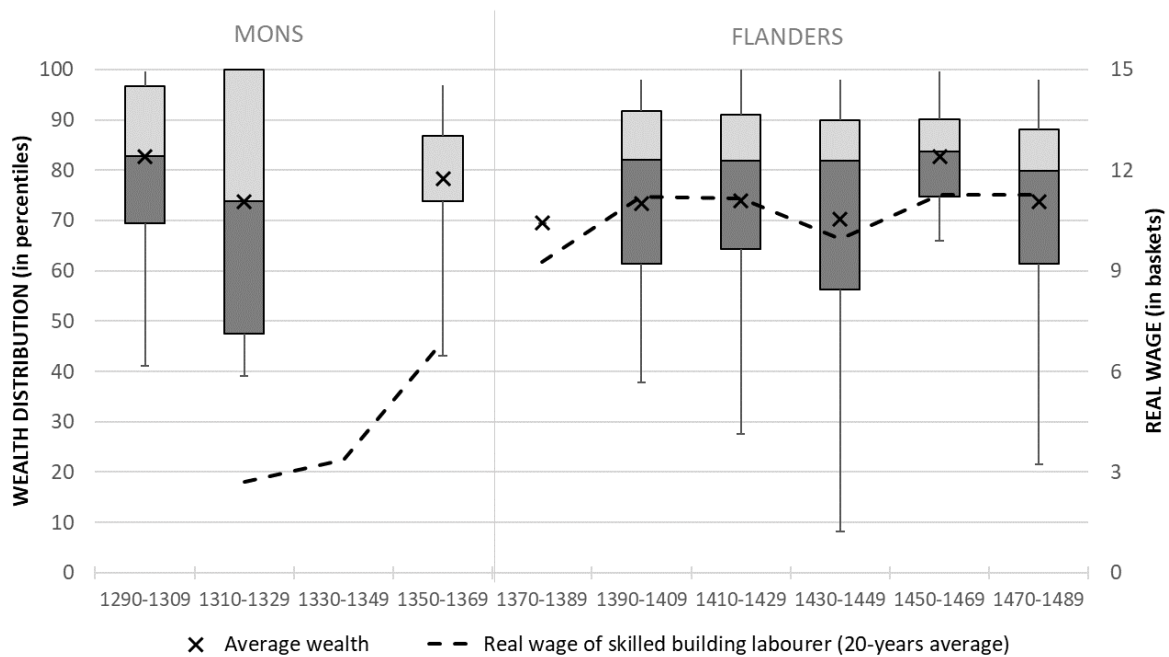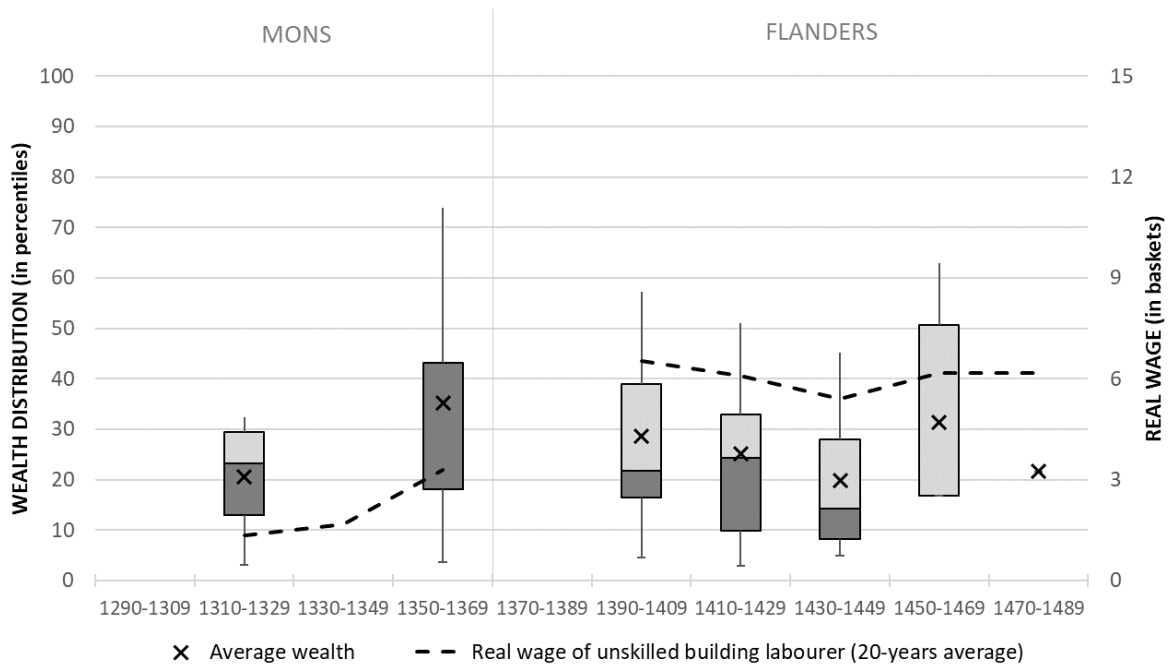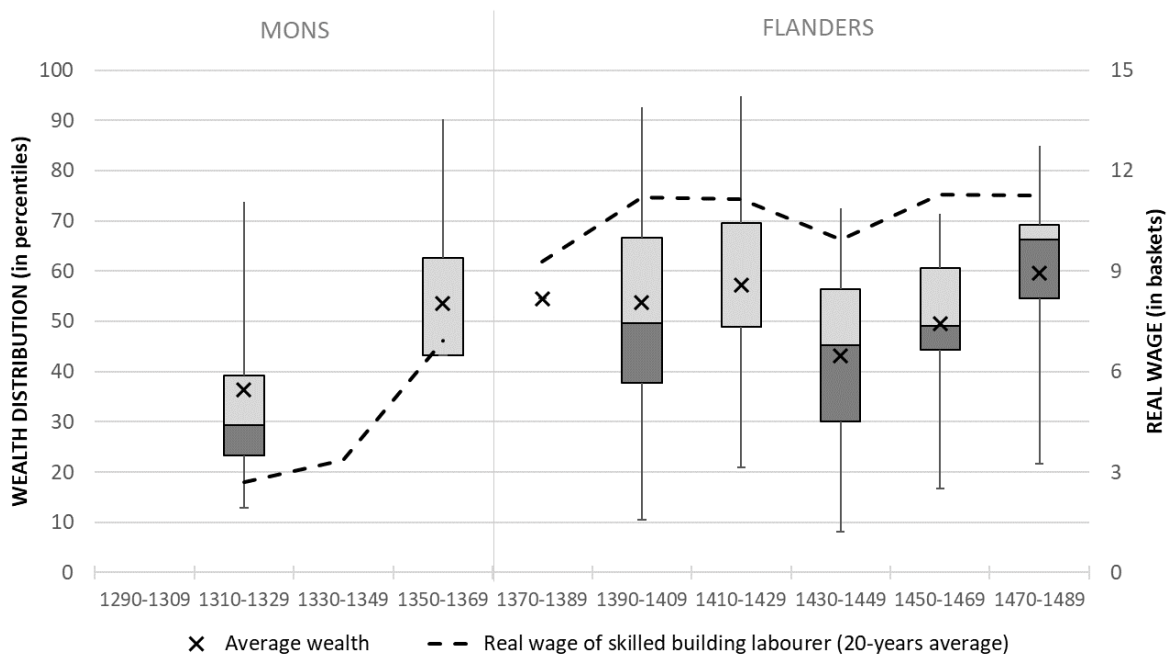
Sources: see Table 3.4

The evolution is completely different for the wage labourers. For them, the demographic shock of the Black Death had a clear positive effect on their fiscal position. In 1327, Jakemart de Montigny was one of many unskilled labourers who helped to pave the roadway in the Rivage district of Mons. He toiled 27 days over ten weeks, which would be the equivalent of a part-time, for a meagre wage of 13 d. tor. per day. Jakemart would have needed to find additional employment for the remaining days since his earnings from the urban project wouldn't allow him to cover the cost of living (he would be able to buy only 56.9% of the necessary consumer baskets).[376] Even if they managed to secure a full-time position, manual workers like Jakemart would have little coin to spare beyond the absolute necessities. Unsurprisingly, their fiscal position in the *droit de bourgeoisie* is relatively low (P13-P29 for Q2-Q3). Jakemart de Montigny paid 12 d. tor., about a day's wage for him. It was the lowest quote possible aside from complete exemption. Skilled labourers fared a little better. About the same time Jakemart was toiling on the road in Rivage, carpenter Jehan de Haynne was working on a gatehouse in the same district. On average, he worked four days per week for 28 d. tor. per day, which was enough to comfortably support himself (he earned 1.8 consumer baskets per week). However, if Jehan had a typical urban family of two à three children and a wife, he wouldn't have been able to build up a financial reserve or invest in profitable assets.[377] His labour was probably his major, if not only, source of income. Accordingly, Jehan de Haynne only had to pay a reduced quote of 24 d. tor. (again, the equivalent of a day's wage) at the feast of Saint-Rémi, which put him in the lower-middle classes (P39) like many of his colleagues (P23-P39 for Q2-Q3).

As we have seen, the Black Death didn't spare the County of Hainaut (see general introduction). Although the population of Mons was actually increasing in the second half of the fourteenth century (see Table 3.4), the labour shortage was apparent in the entire region and real wages rapidly increased (cfr. supra). Yet the hands of the aldermen were bound. One of the few certainties in history is that, just as today, streets are continuously in bad shape and need urgent repairing. It is therefore no coincidence that city accounts of 1363 figure a multitude of unskilled labourers working on the road between Mons and the nearby village of Hyon. For example, the digger Jehan le Fosse is employed for 51.5 days during thirteen weeks.[378] His remuneration is set at 36 d. tor. per day, almost three times as much as de Monitgny earned in 1326 for the exact same job. In contrast, the cost of living had hardly

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[376] Calculations based on the prices reported in chapter one.

[377] Assuming his wife earned half his wage and assuming they both worked full-time (five days per week), they would earn 3.2 consumer baskets, which would be just enough to support themselves and 2.5 children.

[378] During this time Jehan also performed other jobs for the city, such as moving materials for skilled labourers and cleaning out the moats.

increased, which meant that he was earning even more than the skilled carpenter de Haynne (his total earnings over the period were equal to 2.3 consumer baskets). Apparently, this allowed him to rise in the ranks of the wealth distribution (P43), beyond the level of our two early fourteenth-century workers. The story of the digger Jehan le Fosse is far from atypical as most unskilled wage labourers witnessed an increase in their fiscal position (P18-P43 for Q2-Q3 or +38.5% for the bottom of these quartiles and +48.3% for the top). Coincidently, the city accounts of 1363 also contain some reparations to a gate, this time of the town hall. They were, just as four decades earlier, also conducted by a carpenter named Jehan. Jehan le fils Frasinaul worked 7.5 days for two weeks at a daily compensation of 60 d. tor. At this rate and level of employment, he would have been able to support a typical urban household and still have coin to spare (total earnings of 4.8 consumer baskets). Such a comfortable financial position put le fils Frasinaul above the average household in Mons according to the wealth tax of 1365 (P63). In general, most of his colleagues had moved up from the lower-middle classes to the very middle of the distribution (P43-P63 for Q2-Q3 or +85.5% and +59.7%).

For the fifteenth-century, changes in remuneration and in the fiscal position of building labourers are less drastic. Nevertheless, a clear correlation is still visible. According to our multivariate regression analysis, the relationship between the two series is significant (p<0.05). For every consumption basket a wage labourer earned more per day, he or she would move up 10.5 percentiles in the distribution. Aside for the dummy variables for skill levels, this determinant had the largest (and only significant) effect on the outcome (see Appendix 3.3). The evolution of the wage series and its drivers have been discussed in Chapter One and do not need to be repeated here. However, we do want to elaborate on the results for two periods. First, the years 1410-29 are particularly interesting to test the sensitivity of our data to the wage series. It is the only time that our series for unskilled workers diverge from the trend seen for skilled workers (downward versus upwards). Remarkably and most assuring for us, the fiscal position of the two groups likewise displays an opposite evolution (see Figure 3.2). Secondly, the years 1470-89 encompass the turbulent reign of Mary of Burgundy (1477-1482) and the subsequent revolt against Maximilian of Austria (1483-1492). Yet our wage series do not display the sudden nosedive in remuneration we described in Chapter One. Because our poll taxes predate the events (see Table 3.4), we have opted to calculate the average real wage for the years between 1470 and 1477 instead of the usual two decades. Nevertheless, it seems that this is the only period for which the evolution of the fiscal position of skilled building labourers doesn't correspond with the trend in remuneration. Again, the explanation must be sought in the date of the poll tax. For the period 1450-69, we only possess of a tax register for Diksmuide in 1457. Unfortunately, the late 1450's are atypical in regard to real wages. Between 1455 and 1459, the average rate for skilled labourers in the County of Flanders was equal to 9.5 consumer baskets whereas the

average for the entire period was equal to 11.3 (or 18.9% higher). In sum, the aggregates per two decades distort the picture for the late fifteenth century. Real wages did increase significantly between the poll taxes of both periods and so did the fiscal position of skilled wage labourers (from P44-P61 to P55-P69 for Q2-Q3 or +25.0% and +13.1%).

Overall, the experience of the wage earners in the counties of Hainaut and Flanders is in line with the findings of Blondé and Hanus for sixteenth-century 's Hertogenbosch albeit trends were related to income and moved in a different direction. As real wages deteriorated at the start of the early modern period, so too did the fiscal position of building wage labourers decline. Both their study and this chapter thus point at the limited importance and representativeness of casual wage labour for the living standards of the majority of society. Their wealth or income evolved less dramatically than real wage series often suggest. In the case of 's Hertogenbosch, most citizens actually enjoyed increasing living standards in a direct opposition to the declining remuneration in the building industry. Whether we should also turn the Golden Age upside down remains an open question as the relative changes outlined above do not allow us to infer any firm conclusions about the absolute levels of wealth. It nevertheless raises some serious questions for subsequent chapters.

3.4 Conclusions

Real wage series for construction workers provide a deceptively clear picture for the evolution of labour income in the long-term, but they can never provide a complete assessment of living standards. Even if we accept all their shortcomings in measuring annual wage earnings, they still fail to capture the income generated by other assets, household members, and different modes of employment. Consequently, we questioned if real wage series can be representative for the very group they pertain to, let alone society at large. To answer this, we turned to an alternative proxy for living standards, namely the taxation of household wealth. Depending on the fiscal regime and local tradition, tax criteria could differ significantly over time and space. This was especially the case in the Southern Low Countries, where political power was fragmented and rested on a culture of negotiation, but even in the more centralised Republic of Florence fiscal systems were never fixed nor universal. Uncertainties about who and what is included in the records thus complicate comparisons. Notwithstanding those shortcomings, wealth taxations offer us a readily available stratification of (a substantial part) of society in a period for which we have little information. Inspired by the methodology of Blondé and Hanus for sixteenth-century 's Hertogenbosch, this allowed us to confront the fiscal position of building labourers in cities with both the evolution of real wages and the wealth owned by the rest of society at the same time.

In a first step, we relied on some exceptional sources that mentioned the occupational titles of a significant part of the fiscal population. They revealed that in the Republic of Florence and the Southern Low Countries, households active in the building industry generally owned less taxable wealth than the average citizen. In this light, the experience of construction workers may underestimate general levels of living standards. However, the picture is more complicated and the implications for the Golden Age unclear because their fiscal position was not fixed and their social composition was highly diverse. For the city of Florence, it was possible to retrace the position of building labourers in taxation records over time. Until the late fifteenth century, their real wages and their quote moved in a uniform way: higher remuneration was accompanied by a higher fiscal position and vice versa. For all the other cities, a similar exercise was impossible due to a lack of sources. Regarding the social composition, officials did not distinguish between wage-earners and entrepreneurs or suppliers. Differences within the building sector were almost as great as the differences across the entire society. Accordingly, we needed to finetune which group was driving the changes observed in Florence before we could really connect trends in wage income to trends in taxable wealth.

In a second step, we expanded the methodology to circumvent the above limitations of the medieval source material. We identified more than 1,200 construction workers in city accounts and linked about half of them to taxation records. Depending on the jobs performed, we categorised them as contractors and suppliers, skilled wage earners, or unskilled wage earners. Since the problem of homonyms proved too great for the Republic of Florence, this analysis remained limited to the Southern Low Countries. Whereas the impact of the Black Death proved positive for wage earners, they seemed to have a negative effect for the contractors and suppliers. Building activity slacked in the wake of mass mortality, which was detrimental to the profit margins of the self-employed reliant on the reselling of materials and the subcontracting of workers. When the industry recovered in the early fifteenth century, their fiscal position stabilised and changed very little afterwards. In contrast, the wealth of wage earners was strongly correlated to the ups and downs of their remuneration. The results confirm the earlier observations for the city of Florence and suggest that real wage series do capture changes in living standards of building labourers, at least in relative terms and for the Middle Ages. But what does this strong relationship between labour income and wealth mean for society at large and our interpretation of the Golden Age? Do we need to revise more than two centuries of writing economic history? The results are indeed concerning. One can only improve on his or her relative position in wealth distributions at the detriment of others. It implies that the gains for non-wage labourers were far more modest or even none-existent. If the experience of contractors and suppliers is in any way indicative, it seems that entrepreneurial profits were far less characterised by large swings,

especially in the fifteenth century. While relative changes thus question the extent of the Golden Age, it does not allow us to make any definite conclusions about absolute changes in living standards. In the next two chapters, we will therefore focus our attention to reconstructing the wealth levels of different communities and groups.

LOCATING THE RENAISSANCE

Geographical distribution of wealth in the Southern Low Countries and the Republic of Florence

By now, it should be abundantly clear that real wage series based on the daily remuneration of building labourers are not only flawed in multiple ways but also risk to seriously overestimate the gains of the general population after the Black Death. In this fourth chapter, we subsequently leave the building industry behind and try to assess the living standards across entire regions. To this end, we will push the fiscal sources presented in previous chapter to the next level, moving from the relative evolution of a specific occupational group to the absolute evolution of wealth of entire communities in the Southern Low Countries and the Republic of Florence. While the evolving fiscal position of wage workers have led us to question the extent of the Golden Age, it doesn't necessarily invalidate the idea of a more limited increase in living standards for groups outside construction. Indeed, both in the Southern Low Countries and the Republic of Florence, the Late Middle Ages are often considered a period of prosperity and unprecedented wealth. The grandeur of this age is still witnessed today by hordes of tourists visiting imposing cathedrals, such as the Duomo in Florence, and other, grand historic buildings like the Cloth Hall in Ghent. We still get a glimpse of these rich worlds through the detailed paintings of the Flemish Primitives and the colourful frescos of the Italian Renaissance, such as those by Jan van Eyck or Domenico Ghirlandaio, depicting lavish interiors and luxurious clothes. Closely related to such displays of material culture, the increased consumption of old and new luxury goods by an ever larger share of the population has been well documented for the medieval Italian peninsula.[379] For the Low Countries, we have already suggested that some urban middling groups in the area around Bruges may have witnessed a kind of industrious revolution, during which they cut back on leisure in an aspiration to purchase more fashionable consumer goods (see Chapter two).[380]

In contrast to the above, some historians have been rather pessimistic about the fortunes of the general population. To them, the proliferation of luxury consumption and its related industries in the Republic of Florence and the Southern Low Countries must be attributed

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[379] Goldthwaite, *Wealth and the Demand for Art in Italy, 1300-1600*; O'Malley and Welch, *The Material Renaissance*; Cohn, "Renaissance attachment to things: material culture in last wills and testaments."

[380] See also Blondé, Geens, and Stabel, "The World of Goods. An Essay about Leisure and a Medieval 'Industrious Revolution'."

to the accumulation of wealth at the top of society, which was attained at the cost of those classes below them. Most famously, Robert Lopez argued seven decades ago that the splendour of the Italian Renaissance (1350-1550) originated from economic depression. As profits margins dwindled and insecurity increased because of widespread warfare and demographic shocks from the fourteenth century on, the urban elite lost their entrepreneurial spirit. Instead of investing in business, they started to exploit the countryside to gain revenue, which caused wealth to be concentrated in ever-fewer hands in the cities. Subsequently, the consumption of art and a humanistic culture replaced economic success as the hallmark of social prestige.[381] Although some middle classes might have profited from these emerging markets for luxuries, scholars who adhere to the Lopez or depression thesis believe that the opportunities were too limited or out of reach for the bulk of the population, due to skill requirements and guild restrictions, to offset the loss of jobs in the traditional economic sectors, namely agriculture and textile production. In the countryside, the mass mortality caused by plague alleviated the pressure on land, which in turn facilitated the enlargement of farms and the adoption of a more extensive cultivation, requiring less labour.[382] In the cities of the Southern Low Countries and the Republic of Florence, the ongoing textile crisis triggered the industry to reorientate from the mass production of predominantly cheap textiles to the export of luxurious cloths. Whereas the former was mainly based on the input of a large variety of labourers, such as spinsters and combers, the latter required fewer but highly skilled artisans, such as dyers and weavers, as the focus shifted from quantity to quality.[383]

Over the years, the depression thesis has lost some of its explanatory power. At the time of writing, Lopez didn't possess much quantitative data about the performance of the late medieval Italian economy and the distribution of its profits. Ever since, significant progress has been made by scholars, such as Carlo Cipolla, Richard Goldthwaite, Paolo Malanima,

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[381] Robert S. Lopez, *Hard times and investment in culture* (New York: Metropolitan Museum of Art, 1953).

[382] This idea is closely related to a Neo-Malthusian interpretation of the late medieval agricultural world, as formulated most influentially by Postan. Ever since, many studies have criticised such a universal and deterministic impact of demographic evolutions on the land market. For a historiographical overview, see Phillipp R. Schofield, *Peasants and historians : debating the medieval English peasantry* (Manchester: Manchester university press, 2016). For a recent analysis of land markets in the wake of the Black Death, see for example Mark Bailey, *After the Black Death: Economy, society, and the law in fourteenth-century England* (Oxford: Oxford University Press, 2021), esp. 148-53.

[383] John Munro, "Medieval Woollens: the western European woollen industries and their struggles for international markets, c. 1000-1500," in *The Cambridge history of western textiles*, ed. David Jenkins (Cambridge: Cambridge University Press, 2003); "The Rise, Expansion, and Decline of the Italian Wool-Based Textile Industries, 1100-1730: a study in international competition, transaction costs, and comparative advantage," *Studies in Medieval and Renaissance History* IX (2012).

and Guido Alfani.[384]   The first two historians have stressed the ability of the economy to adopt to changing markets and to flourish during the fifteenth century. For example, the booming silk industry may have compensated (some of) the losses caused by the downfall of the traditional textile production of cloth. Moreover, in some regions, such as the Republic of Florence, cloth manufacturing experienced a strong revival from the second half of the century on.[385] Nevertheless, Robert Lopez was correct about the scale of the economy. Long-term series of the GDP of central-northern Italy, reconstructed by Paolo Malanima, reveal that total production was falling continuously during the fourteenth century, contracting to nearly half its initial level (compared to the 1310's, total GDP in the 1390's was 43.3% lower). The fifteenth century witnessed a limited revival of the economy (on average, the level was 12.5% higher than in the 1390's), but a full recovery would not be achieved until the eighteenth century.[386] Moreover, Lopez was also partly right about the rich becoming richer during the Renaissance. Fiscal sources analysed by Guido Alfani reveal that wealth inequality in multiple Florentine and Piedmontese communities tended to increase continuously from 1350 onwards.[387] However, the depression thesis has underestimated the impact of demography in general and of mortality due to plague in specific. Whereas the relative evolution of inequality witnessed an upward trend during the Renaissance, its absolute level compared to the previous period remained significantly lower until the sixteenth century. Following the mass mortality of the Black Death, both the share of total wealth owned by the top of society and the relative prevalence of rich households, as measured by the proportion of the fiscal population above certain multiples of the median taxation, fell drastically.[388] Whereas total production had taken a plunge, GDP per capita inversely reached a peak in the middle of the fifteenth century. As a result, a larger share of the population could possibly afford to buy more (luxury) goods.[389]

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[384] For historiographical overviews including many more important scholars and contributions, see: Judith C. Brown, "Prosperity or Hard Times in Renaissance Italy?," *Renaissance Quarterly* 42, no. 4 (1989); William Caferro, *Contesting the Renaissance* (West Sussex: Wiley-Blackwell, 2011).

[385] Carlo Cipolla, "Economic Depression of the Renaissance?," *The Economic History Review* 16, no. 3 (1964); Goldthwaite, *The Economy of Renaissance Florence*. For a recent analysis of the Italian silk industry, see: Franco Franceschi, "Big Business for Firms and States: Silk Manufacturing in Renaissance Italy," *Business History Review* 94, no. 1 (2020).

[386] Paolo Malanima, "The long decline of a leading economy: GDP in central and northern Italy, 1300–1913," *European Review of Economic History* 15, no. 2 (2011).

[387] Alfani, "Economic Inequality in Northwestern Italy."; Alfani and Ammannati, "Long-term trends."

[388] Guido Alfani, "The rich in historical perspective: evidence for preindustrial Europe (ca. 1300–1800)," *Cliometrica* 11, no. 3 (2017).

[389] Goldthwaite, "The Renaissance economy: the preconditions for luxury consumption."; Paolo Malanima, "Italy in the Renaissance: a leading economy in the European context, 1350–1550," *The Economic History Review* 71, no. 1 (2018).

In the light of the above evidence, an optimistic re-interpretation of living standards during the Italian Renaissance gained pre-eminence during the 1990's and 2000's. However, as the historiographical pendulum swung the other way, some scholars warned against replacing one generalisation with another. Today, the dualistic approach of splendour versus wealth is being replaced by a more complex perspective in which contrasting results may coexist depending on social, temporal, and spatial variables. In particular, William Caferro pointed out how the enormous cost of warfare in this period was financed through high fiscal burdens, especially through indirect taxation on consumption. Such policies eroded foremost the purchasing power of lower classes because a larger share of their income is devoted to subsistence compared to elites. Moreover, fiscal regimes and financial capacities differed widely through time and between Italian states, resulting in a varying impact on the economy and on living standards despite a general increase in the average GDP per capita across the peninsula. For example, Caferro believes that the more commercially developed states, such as the Republic of Florence, were more resilient than others since they recovered part of the expenses through the conspicuous consumption of mercenaries in their fashionable metropoles and since they could rely on a more extensive fiscal system.[390] In this regard, a more neglected part of the Lorenz thesis, namely the role of elites and their possibility to accumulate wealth, has seen a revival of interest. Indeed, recently, historians studying premodern wealth distributions have increasingly pointed to the rise of the fiscal-military state as a fundamental driver of inequality. In some regions, like the Republic of Florence, elites became successful in transferring wealth from the bottom to the top of society through regressive tax systems. Although its burden and impact multiplied greatly during the early modern period, the foundation of such policies must be sought in the late medieval period. In other regions, such as the Low Countries, the existence of representative political institutions, enabling middling groups and fragmenting political power, probably held the long-term increase in inequality somewhat in check.[391]

With the new focus on varying regional experiences of prosperity, many questions have yet to be answered. As we have already mentioned, research into premodern inequality has

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[390] William Caferro, "Warfare and Economy in Renaissance Italy, 1350-1450," *The Journal of Interdisciplinary History* 39, no. 2 (2008). For recent in-depth analyses of the impact of warfare on the Florentine economy, see: *Petrarch's War: Florence and the Black Death in Context* (Cambridge: Cambridge University Press, 2018); John F. Padgett, "Industrial Dynamics in Renaissance Florence: Business Censuses in the 1427, 1433, and 1458 Catasti," *Journal of Modern History* (forthcoming).

[391] Guido Alfani and Wouter Ryckbosch, "Growing apart in early modern Europe? A comparison of inequality trends in Italy and the Low Countries, 1500–1800," *Explorations in Economic History* 62 (2016); G. Alfani and M. Di Tullio, *The Lion's Share: Inequality and the Rise of the Fiscal State in Preindustrial Europe* (Cambridge: Cambridge University Press, 2019).

significantly contributed to the debate in the last decade but hasn't made the explicit connection between the relative fiscal position of households and their absolute wealth. In addition, observations predating the Black Death are severely limited. Meanwhile, real wages still figure prominently as an indication of prosperity despite the mounting criticism we have outlined in previous chapters. For example, Malanima's GDP per capita series for Central Northern Italy are dependent on the daily wage rates of agricultural and construction labourers, restricted to the city of Florence and its hinterland for the medieval period.[392] Although the analyses of probate inventories may have revealed the development of new tastes and a new consumer behaviour characteristically for the Renaissance, they are inadequate to provide a comprehensive picture due to the social bias, often excluding poorer households, and fragmentary nature of the sources, with limited observations per year and few appraisals of the entire inventory. The multiplication of goods doesn't necessarily equal to growing prosperity considering that many of these new fashionable goods were rather inexpensive.[393]

If seven decades of extensive research on the topic hasn't resulted in a conclusive answer for the Republic of Florence, the situation for the Southern Low Countries is even more unclear given the comparably limited scholarly attention. For this region, two leading experts on medieval industry, Raymond van Uytven and John Munro, explicitly underscored the depression thesis in two separate articles in the 1980's and 1990's. Employing indirect and fragmentary evidence for a select number of towns and economic activities, they believed that gross production declined significantly and wealth became more concentrated in the centuries after the Black Death.[394] Unfortunately, the publications did not result in a surge of new data and analyses similar to the one we described for the Italian Renaissance. To date, only two related studies have attempted to reconstruct GDP figures for the Southern Low Countries. The preliminary series both start from 1500 onwards, thus leaving out the medieval period.[395] In the same vein, inequality research hasn't produced any comprehensive

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[392] Malanima, "The long decline of a leading economy: GDP in central and northern Italy, 1300–1913," 176-78.

[393] See for example the case of pottery: Richard A. Goldthwaite, "The Economic and Social World of Italian Renaissance Maiolica," *Renaissance Quarterly* 42, no. 1 (1989); Luis Almenar Fernández, "Why did medieval villagers buy earthenware? Pottery and consumer behaviour in the Valencian countryside (1280–1450)," *Continuity and Change* 33, no. 1 (2018).

[394] John H. Munro, "Economic Depression and the Arts in the Fifteenth-Century Low Countries," *Renaissance and Reformation / Renaissance et Réforme* 7, no. 4 (1983); Van Uytven, "Splendour or wealth."

[395] Jan Blomme and Herman Van der Wee, "The Belgian economy in a long term historical perspective: Economic development in Flanders and Brabant, 1500-1812," in *Economic growth and structural change. Comparative approaches over the long run*, ed. A. Maddison and H. Van Der Wee (Milan: Bocconi University, 1994); Erik Buyst, "Towards Estimates of Long Term Growth in the Southern Low Countries, ca.1500-1846," in *Quantifying long run economic development* (Venice2011).

long-term series due to lack of sources.[396] As a result, the historiography has remained fragmented, often focusing on certain industries or communities in isolation. Although scholars have pointed out some successes, such as the reconversion of the textile sector towards new markets in Inland Flanders, the idea of a late medieval depression still reigns supreme.[397] Yet without a proper assessment of the economy at large, it is difficult to extrapolate how the average household in this region fared during the late medieval period.

In the following two chapters, we will re-evaluate the different aspects of the Lopez thesis for the Southern Low Countries and the Republic of Florence through a single proxy, namely fiscal wealth. At the aggregate level, trends in the total wealth owned in a region may be indicative for the trends in total output (GDP) because it encompasses the stock of resources that may be utilised for production, at least in a premodern context where services and human capital only account for a limited share of the economy compared to agricultural lands.[398] Just as GDP per capita is often used as a crude measurement of the average standard of living in a region, dividing the total wealth figures by population may provide us with an estimate of average prosperity during the Golden Age for labour. Obviously, such aggregate figures only tell one side of the story. For example, an increase in the average wealth per capita may not have provoked better living standards for the masses if it was compensated by a simultaneous increase in inequality. It is therefore necessary to also investigate the share of the elite and the differences between households. While these last issues will be explored in the following chapter, the first two will figure in this chapter to assess when and where there was room for a Golden Age outside the building industry. We will show how the structure of the urban network and the related political constellation determined the geographical distribution of wealth. In some regions, communities were able to overcome the challenges of the late medieval crisis and seized new opportunities to amass new fortunes, whereas others gradually lost their primacy, resulting in an ever-shifting economic landscape.

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[396] Wouter Ryckbosch, "Economic inequality and growth before the industrial revolution: A case study of the Low Countries 14th-19th century," in *Dondena working papers* (Carlo F. Dondena Centre for Research on Social Dynamics, 2014).

[397] For the textile industry in the late medieval period, see for example the output figures per town in: Stabel, ""Dmeeste, oirboirlixste ende proffitelixste let ende neringhe" een kwantitatieve benadering van de lakenproductie in het laatmiddeleeuwse en vroegmoderne Vlaanderen." For examples of the idea of a significant economic decline in the Low Countries until the sixteenth century, see the recent syntheses: T. Brady and J.D. Tracy, *Handbook of European History 1400-1600: Late Middle Ages, Renaissance and Reformation: Volume I: Structures and Assertions* (Brill, 2018), 117-21; I. Lazzarini, *The Later Middle Ages* (OUP Oxford, 2021), 71-75.

[398] Even in a modern context, a strong and stable relationship has been found between total capital and GDP. R.W. Goldsmith and S. Zecchini, "The national balance sheet of Italy (1861–1973)," *Rivista di Storia Economica* 15 (1999).

4.1 Different spaces, similar lives?

In a direct confrontation of the Lopez thesis, Richard Goldthwaite argued that the Renaissance and its related consumer markets developed because of the way this increasing wealth was distributed geographically. According to him, the political fragmentation of the Italian peninsula prevented a single city to dominate the economic landscape. Continuous warfare between different entities ensured that wealth was continuously redistributed. Moreover, the elites predominantly lived in cities. They nevertheless owned the majority of land in the countryside, which meant that a large share of rural profits was transferred to the urban markets, where elites spent their money in an effort to differentiate themselves from their peers through consumption. In contrast, in many Northwestern European states, such as France or England, capitals functioned as the central market and curbed the economic potential of other cities in the urban network. Here, traditional elites retained their rural identity and pattern of consumption for a much longer period, often in direct opposition of an upcoming bourgeoisie class. As a result, wealth was concentrated in a single metropole and the demand for new consumer goods produced in cities was less widespread than in Italy.[399]

Although the arguments of Goldthwaite seem convincing on a macro-level, they don't account for the varying realities both in the Italian peninsula and Northwestern Europe. The competition between the different Italian political entities may not have led to a single controlling metropole, but it did give rise to a select few powerful cities which came to dominate the urban network inside their respective territories. This is precisely what happened in Florence, the birthplace of the Renaissance. From the later fourteenth century on, the city waged multiple wars to increase its rule. By 1427, the Republic encompassed a territory five times as great as in 1337. As public debt skyrocketed to finance these expeditions and the traditional industries started to struggle, Florence started to restrict economic activities in other communities whenever it catered to the same markets as the capital. In addition, the lack of rural elites meant that there was little opposition to the exploitation of the countryside by the urban rulers. Based on the spread of sharecropping (*mezzadria*), the purchase of rural lands by citizens seemed to have accelerated in the second half of the fourteenth century. According to some historians, these evolutions were detrimental to the prosperity of the secondary cities and the hinterland, which might explain why the Republic witnessed such a slow demographic recovery after the Black Death.[400] Other historians,

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[399] Goldthwaite, "The Renaissance economy: the preconditions for luxury consumption," 24-30.

[400] Epstein, "Cities, Regions and the Late Medieval Crisis: Sicily and Tuscany Compared."; Marco Tangheroni, "Il sistema economico della Toscana nel Trecento," in *La Toscana nel secolo XIV. Caratteri di una civiltà regionale*, ed. Sergio

however, have interpreted the ascent of Florence more optimistically as the specialisation of functions in an integrated regional economy. Wasteful competition between cities, trying to finance similar projects individually, was eliminated and, consequently, the capital could spearhead commercial innovation thanks to the now pooled resources. In this regard, the clearly structured network governed by the capital potentially brought prosperity to all communities in the Republic.[401]

In Northwestern Europe, widespread urbanisation and a strong urban demand for consumer goods were not completely absent. In the Southern Low Countries, small and secondary cities were able to develop highly specialised functions from the late fourteenth on. Here, the fragmentation of power between and within nobility, clergy, and cities to a large degree prevented the emergence of protectionist measures. When the textile industry in Bruges and Ghent reoriented itself in the light of changing international markets towards the production of luxury woollens, so too did the smaller cities convert their production towards more qualitative textiles albeit somewhat later and aimed at the medium segment. The transition was most extensive and successful in northern Hainaut and Inland Flanders, especially in localities situated near the river Lys. For example, woollens from Wervik and Menen, towns with less than 2,000 inhabitants, were sold across the whole European continent.[402] The towns of Oudenaarde and Enghien witnessed exceptional growth as they became important centres for tapestry weaving in the sixteenth century.[403] Other cities also found opportunities outside the traditional cloth industry, not rarely with great success. Aalst, housing around 4,000 souls, profited from its central position on the waterways by acting as a transit hub for grain.[404] The easy access to grain stimulated in turn the growth of the brewing industry, which became one of the largest in fifteenth-century Flanders.[405] In a similar vein, the city of Valenciennes profited from its strategic position in Hainaut and became one of the most important transit hubs for grain from northern France to the densely populated cities of the Low Countries.[406] In southern Hainaut, some towns experienced unprecedented growth

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Gensini (Pisa: Ospedaletto, 1988); Daniel R. Curtis, "Florence and its hinterlands in the late Middle Ages: contrasting fortunes in the Tuscan countryside, 1300–1500," *Journal of Medieval History* 38, no. 4 (2012).

[401] Paolo Malanima, "La formazione di una regione economica: la Toscana nei secoli XII-XV," *Società e storia* 6, no. 20 (1983): 105; Herlihy and Klapisch-Zuber, *Tuscans and their families*.

[402] Stabel, ""Dmeeste, oirboirlixste ende proffitelixste let ende neringhe" een kwantitatieve benadering van de lakenproductie in het laatmiddeleeuwse en vroegmoderne Vlaanderen," 133-36.

[403] Martine Vanwelden, *Productie van wandtapijten in de regio Oudenaarde : een symbiose tussen stad en platteland (15de tot 17de eeuw)* (Leuven: Universitaire Pers Leuven, 2006).

[404] All population figures relate to 1469. Prevenier, "La démographie des villes."

[405] Stabel, *De kleine stad in Vlaanderen*, 226-41.

[406] H. Platelle et al., *Histoire de Valenciennes* (Lille: Presses universitaires du Septentrion, 1983), Ch. 5.

thanks to the increased trade in meat and dairy products.[407] Moreover, the political landscape also better safeguarded the property rights of rural households in comparison to the Republic of Florence. Subsequently, industrial activities also developed in the countryside. Most importantly, the cultivation and processing of linen for export first emerged during the later fourteenth century and eventually boomed in the sixteenth century in large parts of Inland Flanders and northern Hainaut.[408] It remains however unknown if such a diversification and specialisation in economic activities were more beneficial to the region as a whole compared to the previous period.

Since a picture is worth a thousand words, the difference in the urban network is perhaps more clearly illustrated by Maps 4.1 and 4.2. A cursory glance already reveals that the sheer quantity of cities in the fifteenth century was many times greater in the Southern Low Countries than it was in the Republic of Florence. In historiography, the number of urban communities in the latter territory is often estimated at about 26 whereas the County of Flanders counted more than 50 and the County of Hainaut more than 20 towns. Moreover, the distribution of towns was much denser in the last-mentioned regions. The maximum distance any rural household had to walk to the nearest town was merely 10 to 20 kilometres.[409] The proximity of so many markets probably offered many economic opportunities, especially when combined with an extensive river network and well-integrated ports. On the other hand, the large concentration of people and political power in a single centre, may have offered the advantage of scale. In the fifteenth century, circa 14.3% of the total population was living in the capital of Florence versus 10.3% or 7.2% in the largest cities of Flanders and Hainaut respectively. It is therefore interesting to explore if different power relations and related settlement patterns also resulted in different opportunities for a Golden Age. Are concentrations of people related to higher levels of fortunes? Were other cities able to profit in a monocentric model of urbanisation or were average wealth levels higher in a decentralised system? To what extent are the results representative for the countryside?

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[407] Gérard Sivéry, "Les profits de l'éleveur et du cultivateur dans le Hainaut a la fin du Moyen Age," *Annales. Histoire, Sciences Sociales* 31, no. 3 (1976).

[408] Raymond Van Uytven, "Een statistische bijdrage tot de geschiedenis van de linneninvoer in Engeland in de laatste jaren der XIVde eeuw, in het bijzonder van uit de Nederlanden," *Bijdragen tot de Geschiedenis van het oud Hertogdom Brabant* 13 (1961); Sabbe, *De Belgische vlasnijverheid.*, 1; Thoen, "Landbouwekonomie en bevolking," 980-1010.

[409] According to Herlihy and Klapisch-Zuber, about 700 à 800 inhabitants is a good threshold to distinguish urban communities from rural one. Here, we have opted for a slighter higher figure of 1,000 inhabitants though the results would be similar if we had taken the lower threshold. Herlihy and Klapisch-Zuber, *Tuscans and their families*, 53-54; Stabel, "Urbanisation and Its Consequences," 182.

MAP 4.1 URBAN CENTRES IN FLANDERS AND HAINAUT (15TH CENTURY)
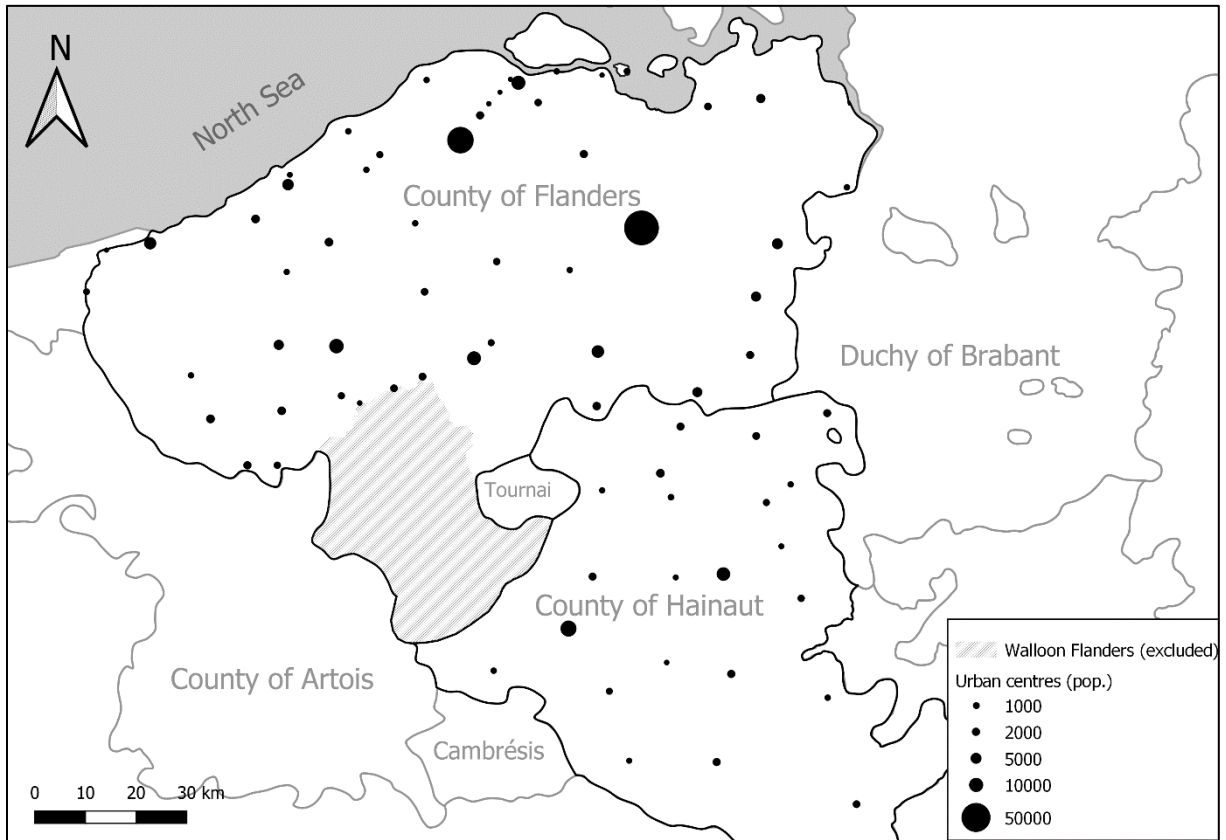
Sources: Prevenier, "La Démographie Des Villes", 255-75 ; Arnould, *Les dénombrements*, 303-310.

MAP 4.2 URBAN CENTRES IN THE REPUBLIC OF FLORENCE (15TH CENTURY)
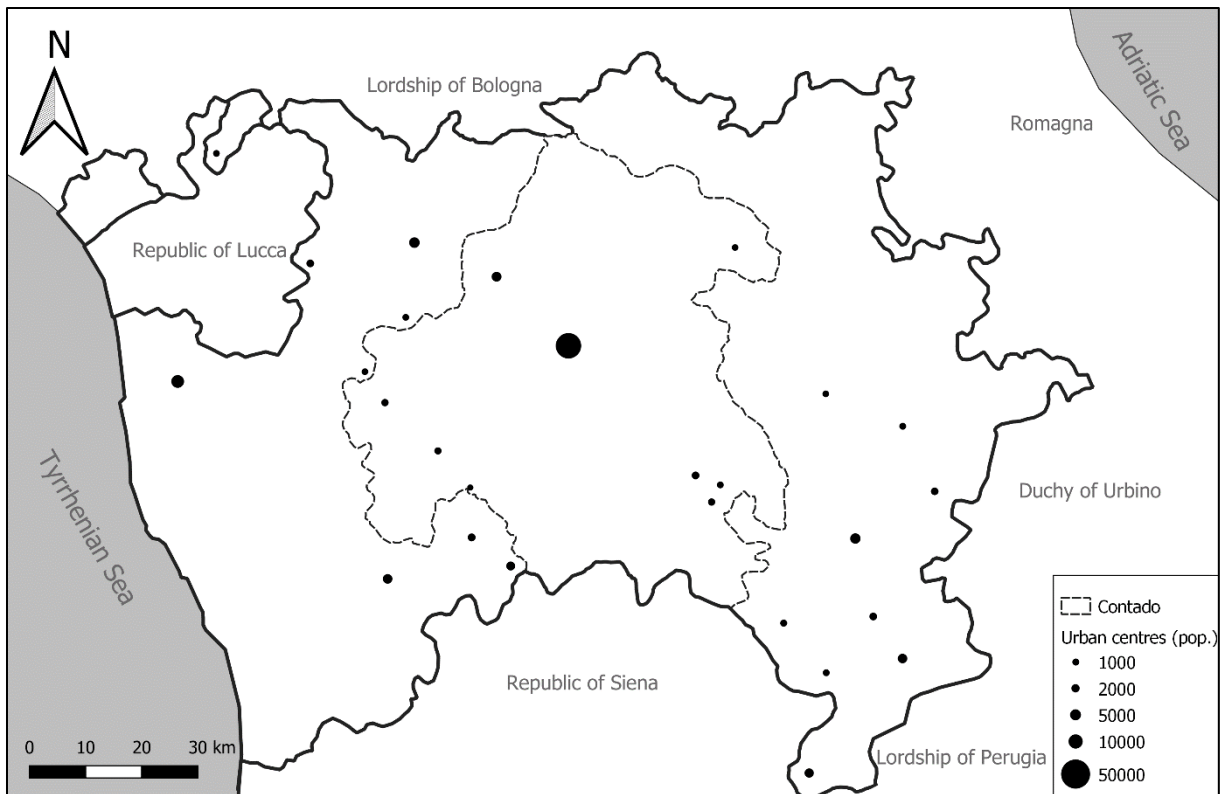
Sources: Herlihy and Klapisch-Zuber. *Les Toscans Et Leurs Familles*, 112.

To answer the above questions, we need to reconstruct the regional stock of wealth. However, this is not an easy task. Taxation records probably present us with the most direct data on the matter because medieval taxation was predominantly based on (some components of) wealth, but they also come with several shortcomings as we have seen in previous chapter (see 3.1 To tax or not to tax?). First and most importantly to our current objective, is the lack of information on tax rates for the vast majority of fiscal sources, which makes it difficult to convert the assessments in comparable absolute figures. Although some notable efforts towards a uniform policy were made during the Late Middle Ages, rates were commonly decided in function of the envisioned revenue and thus changed considerably over time and space. Secondly, most fiscal sources do not inform us about the wealth owned by the clergy and nobility. Their feudal lands and vast farms represented a significant share of the total stock in this period. For instance, clergy and nobility held 19.76% of the taxable wealth in the County of Hainaut in 1365 (see 3.1 To tax or not to tax?). All figures in this chapter only relate to the common population. However, since we are mostly interested in the evolution of living standards for the working classes, the exclusion of certain elite groups will not affect our conclusions. A third and final obstacle is the geographical coverage of taxation records. Due to the large degree of freedom of local communities in the execution of fiscal matters, especially in the Southern Low Countries, but also in the *distretto* of the Florentine Republic, preciously few taxations records have resulted in all-encompassing sources. For most years or even decades, we only possess of records for a handful of communities. There are nevertheless some exceptions that may provide us with data for either the entire region or important communities, which are representative for the general trend. To facilitate comparisons and identify evolutions over time, we have grouped the data into three different periods (c. 1300, 1400, and 1550) though the specific years per community might vary.

4.2 All for one. The Republic of Florence

The most obvious starting point for the reconstruction of the regional stock of wealth concerns the Florentine *catasto* of 1427. Thanks to the seminal study by David Herlihy and Christiane Klapisch-Zuber, we are well-informed about the source and its characteristics. The *catasto* was a fiscal innovation that replaced the earlier *estimi*, which were levied on varying localities and assets though mostly targeted real estate in the countryside. The new system introduced a more standardised and extensive way of taxing: it applied to all communities in the Republic and it assessed a multitude of assets, including real estate,

livestock, cash, business capital, credits and shares in the public debt.[410] The data for 1427 is readily available in an online database, containing information on the assessed wealth per household and the total number of family members per household.[411] Table 4.1 reports the total and per capita taxable wealth for the entire region as well as its different cities and territories. We have converted all currencies to kilograms of silver to make comparisons across time and space possible.[412] Alternatively, we could have opted to use the consumer baskets calculated in the first chapter as a deflator. However, its price is not available for all years for which we have observations of wealth. In addition, the value of assets expressed in baskets has little practical meaning compared to wages. Whereas the latter was immediately used to purchase different essential commodities included in the reconstructed baskets, the former commonly functioned as a financial reserve over a long period. Some of these assets included loans or cash, the value of which was largely dependent on the metal composition of the coins. Naturally, silver is in itself a commodity and therefore dependent on certain market fluctuations that are not necessarily representative for the economy at large.[413] For example, silver and gold were more abundantly available in the Italian peninsula thanks to its central role in the North-African and Eastern trade as well as the European banking system. As a result, we risk to somewhat overestimate the extent of wealth in the Republic of Florence vis-à-vis the Southern Low Countries. Despite such drawbacks, it remains one of the most popular methods of deflation and is probably the best suited when dealing with premodern wealth over the long term.

The results for the *catasto* of 1427 are well-known in the historiography, especially for the capital, but they are difficult to interpret in isolation.[414] Without data for other regions, it is hard to determine how typical the concentration of wealth was and how rich the Florentines really were at that time. What does an average taxable wealth per capita of 2.081 kg. silver

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[410] For details, see Enrico Fiumi, "L'imposta diretta nei comuni medioevali della Toscana," in *Studi in onore di Armando Sapori* (Milan: Ist. Cisalpino, 1957); Elio Conti, *L'imposta diretta a Firenze nel quattrocento (1427-1494)* (Rome: Istituto Storico Italiano per il Medioevo, 1984); Herlihy and Klapisch-Zuber, *Tuscans and their families*, 10-20.

[411] "Online Catasto of 1427."

[412] For the conversion of the Florentine lire, we have used Malanima, "The long decline of a leading economy: GDP in central and northern Italy, 1300–1913," 205-17; "Wheat prices in Tuscany, 1260-1860 (annual averages)," Historical Prices and Wages: Datafiles (International institute of social history, 2019). For Florins: Goldthwaite, *The Building of Renaissance Florence: An Economic and Social History*, 429-30. For the Flemish groot: John Munro, "Values of Flemish and English Coinages, with Exchange Rates."

[413] Florentines actively engaged in the trade of coins for a profit. See for example: Goldthwaite, *The Economy of Renaissance Florence*, 215.

[414] Herlihy and Klapisch-Zuber, *Tuscans and their families*, 93-130.

mean in a premodern context?[415] Unfortunately, no comparable *catasti* have been conducted for the following period even though officials initially planned to make new surveys every three to five years. In total, records for eleven different *catasti* have been preserved, but only the first one encompassed the entire region.[416] Especially the communities in the *distretto* opposed the new fiscal system as they were used to organise their own finances. As a result, very few sources pertain to this part of the Republic. Moreover, as time progressed, the method of assessment changed: after 1469, officials focused only on real estate as their colleagues had done in the previous century.[417] This isn't overly problematic as the detailed records of 1427 differentiate between the types of assets. We have opted to convert the data for the late fifteenth century to total wealth levels by applying the share of real estate in the total recorded for the same communities in 1427, because it allows us to compare more easily with the figures for the other periods.

In 1495, the *catasti* were finally replaced for Florence and its *contado* by a new system, the *decima*, which taxed a tenth of the annual return on immovable property. Most significantly, the unit of assessment changed from the household to the property itself. Since the *decima* was collected per town or village, it is near impossible to reconstruct household wealth. For example, the total wealth of Florentine citizens in 1561 drops to one third of the level owned in 1480, simply because the records don't include rural properties.[418] But even if all contemporary sources for the countryside would have been preserved, linking thousands of properties to the appropriate households and their location of residence would simply be unfeasible.[419] To assess the evolution of wealth over the long term, we thus have to rely on the last available *catasto*. For the city of Florence, this was conducted in 1480. For communities in the *distretto*, the fiscal system changed much later. For example, a *catasto* of the year 1558 has been preserved for the city of Arezzo.

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[415] Multiple estimates exist for present-day countries, but they are hard to compare given the different methodology and context. See for example: Population Division United Nations, *World fertility 2019: Early and later childbearing among adolescent women aged 15-19 years* (New York: United Nations, 2020); Anthony Shorrocks, James Davies, and Rodrigo Lluberas, *Global wealth databook* (Credit Suisse Research Institute, 2021), 115-18.

[416] The inventory of the *Archivio del Catasto* in ASF contains tax records for the following years: 1427, 1429, 1433, 1441, 1446, 1451, 1457, 1460, 1469, 1480, and 1487.

[417] Conti, *L'imposta diretta*.

[418] DECIMA, "1561 Florence," ed. University of Toronto (2016). online dataset.

[419] The *decime* for the *contado* are for instance preserved for 1498 and 1534. They compromise tens of thousands of folios each and do not contain any totals for communities or regions. They can be accessed online: Associazione Amici dell'Archivio di Stato di Firenze, "Archivi Digitalizzati," Archivio di Stato di Firenze, https://www.archiviodistato.firenze.it/archividigitali/fondi/.

For the period before the *catasti*, we need to be more creative. Before the Black Death, the majority of the Tuscan territory was not yet part of the Republic (around 1300, Florence controlled only one fifth of the area it held in 1427). The political fragmentation also implied fiscal fragmentation. As we have mentioned earlier, taxation could vary significantly over time and space. For example, officials of Pisa taxed households in the entire territory in 1283 but only citizens in 1344.[420] In contrast, the city of Florence was often exempt while its *contado* often bore the entire burden of such levies. In 1326, this privilege was temporarily revoked to finance the ongoing war against Lucca. The Duke of Calabria, appointed for ten years as the *signore* to guide Florence through the crisis, ordered an extensive survey of wealth in the Republic, estimating the extent of immovable properties, credits and business profits.[421] Around the same period, the city of San Gimignano taxed their subjects based solely on the income of their immovable properties.[422] Given these important fiscal differences, there is no one size fits all methodology to reconstruct wealth levels and it is necessary to look at each case in-depth. To keep the current discussion focused, Appendix 4.1 explores the available sources for the territories of Florence, Pisa, Prato, San Gimignano and Fucecchio. Together, these communities represent about half of the population (50.61% of total) living in the area surveyed by the later *catasto* of 1427. The total wealth for the Republic is extrapolated by multiplying the average wealth per capita of the aforementioned urban and rural communities with the estimated total urban and rural population. Because of the atypical concentration of wealth in the city of Florence, we have opted to exclude it from this calculation and added it afterwards to the total. Obviously, due to the varying nature of taxation and due to the several assumptions we had to make, the margin of error is greater compared to our results for the *catasti*. As such, the results for this period shouldn't be interpreted as precise figures but rather as orders of magnitudes.

The totals reported in Table 4.1 for the entire republic of Florence confirm the general economic trends we have outlined in the introduction: although the total stock of wealth plummeted between our two points of observation (losing 67.54% of its value between 1300 and 1427), the even more dramatic decline in population figures, dropping from 1.15 million to circa 265,000 inhabitants (-76.14%), resulted in a significant increase of per capita wealth (+40.32%). This evolution is consistent with the figures calculated by Malanima for the GDP per capita and real wages over the same period.[423] However, a completely different picture

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[420] Cinzio Violante, *Economia, società, istituzioni a Pisa nel Medioevo: saggi e ricerche* (Bari: Dedalo libri, 1980), 119-26.

[421] John Najemy, *A History of Florence, 1200 - 1575* (Oxford: Blackwell, 2006), 119-23.

[422] Enrico Fiumi, *Storia economica e sociale di San Gimignano* (Firenze: Leo S. Olschki, 1961), 134-48.

[423] The average level of GDP per capita in the 1420's was 26.23% higher than the average for the period 1310-1347. Unskilled and skilled labourers earned circa 56% more consumer baskets when comparing the aforementioned periods.

emerges when we look at the communities and territories that made up the Republic in 1427. In Florence, the decline in wealth was modest compared to the region as a whole, losing one fourth instead of two thirds of its initial stock. As a result, per capita figures doubled, soaring to unprecedented levels of 9.840 kg of silver per citizen. In stark contrast, the evolution in the other communities for which we have data is mostly negative. Citizens of Pisa, San Gimignano, and Prato witnessed a significant decline of their fortunes by 1427. The same holds true for the *contado* of Pisa and Florence, as well as the rural area of Fuccechio. While some increase can be attested for the *contado* of San Gimignano, the trend is hardly representative because it only pertains to 1,116 inhabitants in 1427 versus 128,896 inhabitants living in the aforementioned areas of the countryside. Overall, rural households seemed to have fared the worst of all. The stock of wealth fell to one tenth of its pre-Black Death level and per capita figures almost halved!

So how should we interpret the above results? Although the European textile crisis and the Florentine banking crisis must have triggered a period of decline during the first half of the fourteenth century, we would have expected a more universal increase by the fifteenth century, based on the idea of a Golden Age for labour. The traditional (neo-)Malthusian explanation, which predicts that per capita wealth would move up everywhere after demographic shocks due to a sudden increase in inheritances per survivor, falls short to explain the contrasting geographic differences. If population was the single most important variable, gains should have been the highest in the countryside, where the number of inhabitants fell by nearly 80% compared to the 65% loss in the metropole between 1300 and 1427. Yet, as we have seen, the trend is precisely the opposite. An explanation has to be sought in the territorial expansion of the Republic and the way these campaigns were financed, causing radical changes in the structure of the urban network and its economy. From 1338 on, Florence managed to bring an ever-growing number of Tuscan territories under its rule, either through purchase or, more commonly, military expeditions. For example, between 1382 and 1435, the city-state was continuously at war. The geographical extent of the Republic quintupled over the course of one century, but the financial cost was exceptionally high as William Caferro has stressed (see introduction). Public debt rose from a modest 47,000 florins in 1303 to a staggering 3.5 million florins in 1433, equal to nearly half the total wealth of the entire region (48.80% of the total value reported in the *catasto* of 1427).[424]

For wage data, see Chapter One. For GDP levels, see Malanima, "The long decline of a leading economy: GDP in central and northern Italy, 1300–1913."

[424] Andrea Zorzi, "The material constitution of the Florentine dominion," in *Florentine Tuscany: Structures and Practices of Power*, ed. William Connel and Andrea Zorzi (Cambridge: Cambridge University Press, 2000).

TABLE 4.1 TOTAL TAXABLE WEALTH (A) AND PER CAPITA WEALTH (B) IN THE REPUBLIC OF FLORENCE, 1296-1569 (IN KG. SILVER)

	c. 1300		1427		c. 1550		Years with data
	A	B	A	B	A	B	
A) Cities (in order of pop.)							
Florence	462,048 à 510,794	3.850 à 5.675	374,008	9.840	(361,560)[1]	(8.846)[1]	1326;1427;1480
Pisa	(45,586)[2]	(3.315)[3]	23,386	3.083			1371; 1427
Pistoia			11,879	2.650			1427
Arezzo			10,873	2.558	(15,934)[1]	(2.056)[1]	1427;1558
Prato	24,704 à 27,457	1.717 à 1.909	6,206	1.717	(3,140 à 3,638)[1,4]	(0.898 à 1.041)[1,4]	1305-16;1427; 1469-71
Volterra			5,860	1.740			1427
Cortona			5,961	3.486	17,924	3.432	1427; 1569
Montepulciano			3,890	2.275			1427
Colle			3,755	2.196			1427
San Gimignano	(26,848)[1]	(3.356)[1]	4,381	2.562			1318-1336; 1427
Castiglione Fiorentino			2,568	1.502			1427
San Miniato			2,555	1.494			1427
Total cities	(868,101)[5]	(3.472)[5]	455,322	6.089			1427
B) Countryside							
Contado of Florence							
- Pre-1338 borders	259,286 à 308,032	0.810 à 1.162	49,770	0.479			1326;1427
- Prato	10,519	1.061	2,846	0.529			1305-16;1427
- Other			10,010	0.588			1427
- Total contado			62,626	0.495			
Distretto							
- Pisa	(11,397)[2]	(0.493)[3]	7,296	0.391			1371; 1427
- Cortine d'Arezzo			3,322	0.629	(5,465)[1]	(0.781)[1]	1427;1558
- San Gimignano	(2,989)[1]	(0.702)[1]	1,103	0.988			1318-1336; 1427

- Fucecchio	(2,480)[1]	(1.098)[1]	1,006	0.588		1296; 1427
- Other			24,727	0.635		1427
- Total distretto			37,454	0.577		
Total countryside	(843,049)[5]	(0.937)[5]	100,080	0.523		1427
C) Republic of Florence						
Borders before 1338	770,080	1.750 à 2.169	423,778	2.984		
Outside borders of 1338	(941,071)[5]	(1.251)[5]	131,624	1.061		
Borders of 1427	(1,711,151)[5]	(1.488)[5]	555,402	2.088		

Notes:

1. Based on the values of immovables properties. Converted to total wealth based on the relative importance of immovables in 1427
2. Based on the ratio between city and *contado* given in the *catasto* of 1427
3. Population figures based on the demographic evolution of Pistoia (city and *contado*) between 1351 and 1427
4. Range dependent on the values reported by the declarations preserved in the Florentine archives and those reported by the *catasto* preserved in the Pratese archives
5. Extrapolation of the average wealth per capita of urban and rural communities with data multiplied by their respective estimated population (city of Florence added separately)

Sources:

See Appendix 4.1; Fiumi, Enrico. *Demografia Movimento Urbanistico E Classi Sociali in Prato Dall'età Comunale Al Tempi Moderni.* Firenze: Leo S. Olschki, 1968: 35-149; Russell, Josiah Cox. *Medieval Regions and Their Cities.* Bloomington: Indiana University Press, 1972: 40-52; Violante, Cinzio. *Economia, Società, Istituzioni a Pisa Nel Medioevo: Saggi E Ricerche.* Bari: Dedalo libri, 1980: 129; Della-Pina, Marco. "L'évolution Démographique Des Villes Toscanes a L'époque De La Naissance Et De L'affirmation De L'état Régional (Xve-Xviie Siècles)." *Annales de démographie historique* (1982): 51-52; La Roncière, Charles-Marie de. *Prix Et Salaires À Florence Au Xive Siècle (1280-1380).* Rome: École Française de Rome, 1982: 659; Molho, Anthony. *Marriage Alliance in Late Medieval Florence.* Cambridge: Harvard University Press, 1994: 87; Carbone, Lauretta, and Claudio Saviotti. *Con Il Computer Alla Scoperta Del Passato : Proprietari, Mercanti, Artigiani Ed Indigenti in Arezzo Alla Metà Del '500. / a Cura Di Lauretta Carbone, Claudio Saviotti ; Presentazione Di Augusto Antoniella.* Arezzo: Provincia di Arezzo, 1995; Herlihy, D., and C. Klapisch-Zuber, "Online Catasto of 1427 [Machine Readable Data File Based on D. Herlihy and C. Klapisch-Zuber, Census and Property Survey of Florentine Domains in the Province of Tuscany, 1427-1480.]," Brown University. Perol, Céline. *Cortona: Pouvoirs Et Sociétés Aux Confins De La Toscane (Xve-Xvie Siècle).* Rome: École française de Rome, 2003: 103.

As expenses clearly outstripped the regular revenue of the city-state, officials turned towards forced loans and direct taxations. The details of this financial system are well studied and don't need to be reiterated here.[425] What is important is that the brunt of the burden fell on the *contado* of Florence. Here, tax rates could be as high as 10.51%.[426] Meanwhile, urban assets and rural possessions of citizens were often exempt from these levies. Moreover, the citizens of the capital owned virtually all shares in the public debt (99.95% of total debt).[427] As a result, the ongoing warfare transferred large amounts of wealth from the countryside to the city of Florence. Between 1404 and 1427, the total stock held by the households of the *contado* continuously declined from circa 3.3 to 1.7 million florins (-48.85%).[428] Impoverishment pushed many households out of the countryside and into the city, looking for new ways to make a living. Vacant lands were subsequently purchased by urban elites, who leased them out, predominantly under the *mezzadria*-system, which was a type of sharecropping with strict regulations about crop choices and agricultural techniques. This process of urban encroachment already started at the end of the thirteenth century, but seemed to have sped up after the Black Death because of the sudden depopulation and increase in urban wealth per capita.[429] In this regard, Florence's political control over its countryside was increasingly translated in economic control, adding a second way of extracting profits besides taxation.[430]

At the other side of the conflict, we find the conquered territories. Even though they fared somewhat better than the immediate hinterland of Florence, their experience was overall negative (on average, per capita wealth declined by 16.19%). Here, warfare had an immediate effect through destructions and emigration. The case of Pisa is most telling. After negotiations to purchase the city had failed, Florence financed an army through a series of forced loans to besiege the Pisans. In 1406, the troops ravaged the countryside and formed a

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[425] See for example: Fiumi, "L'imposta diretta nei comuni medioevali della Toscana."; Anthony Molho, *Florentine Public Finances in the Early Renaissance, 1400-1433* (Cambridge: Harvard University Press, 1971); Conti, *L'imposta diretta*.

[426] Cohn, *Creating the Florentine State: Peasants and Rebellion, 1348-1434*, 73.

[427] Herlihy and Klapisch-Zuber, "Online Catasto of 1427."

[428] Molho, *Florentine Public Finances*, 26.

[429] Much work has been done on the structure of Florentine countryside. See for example: Elio Conti, *La formazione della struttura agraria moderno nel contado fiorentino (secoli XV-XIX)*, 2 vols. (Rome: Istituto storico italiano per il medio evo, 1965); Giovanni Cherubini, *Signori, contadini, borghesi. Ricerche sulla società Italiana del basso medioevo* (Florence: La Nuova Italia, 1974); Giuliano Pinto, *La Toscana nel tardo medioevo: ambiente, economica rurale, società* (Florence: Sansoni, 1982); Curtis, "Florence and its hinterlands."; Davide Cristoferi, "Socio-economic inequalities in fifteenth-century Tuscany : the role of the mezzadria system," in *Inequality in rural Europe (Late Middle Ages - 18th century)*, ed. Guido Alfani and Erik Thoen, Comparative Rural History Network (Turnhout: Brepols, 2020).

[430] Profits seemed to have been the most important motivation of Florentine citizens to buy rural lands. See: Daniel A. Ackerberg and Maristella Botticini, "The Choice of Agrarian Contracts in Early Renaissance Tuscany: Risk Sharing, Moral Hazard, or Capital Market Imperfections?," *Explorations in Economic History* 37, no. 3 (2000); Goldthwaite, *The Economy of Renaissance Florence*, 544.

blockade to starve out the defenders. While private wealth in the *contado* of Pisa had always been limited due to the region's focus on maritime commerce, the limited presence of large landowners, and the topography of the terrain, such as the many marshes, the pillaging was probably a major cause why it declined to the lowest levels observed in the entire *catasto* of 1427 (see Table 4.1).[431] The city, on the other hand, was never assaulted directly and thus escaped largescale destruction. However, two taxation records just before (1402) and after the war (1407) reveal that one fifth of the urban population had fled or died during the conflict (the number of households declined from 3,500 to 2,816). To pacify the rebellious city, Florence exiled a large number of potential insurrectionists, but this alone cannot explain the demographic downturn. In the following years, the rate of emigration remained high and another third of the surveyed households disappear from the fiscal sources (numbers declined further to 2,254 households in 1409 and 1,779 in 1412).[432] Given the demographic patterns in the fifteenth-century Republic of Florence, it is highly likely that these refugees either moved abroad, thus removing wealth from the regional stock, or to the capital, thus enhancing the already ongoing transfer of wealth to the city of Florence.[433] It is therefore easy to imagine that most of the dramatic fall in the total and per capita wealth in Pisa between 1371 and 1427 (see Table 4.1) can be attributed to this tumultuous period.

As an alternative to war, peaceful subjugation was no better guarantee for continued prosperity. In 1384, the city of Arezzo sold its independence for 40,000 florins or 1,596 kg. silver to Florence. In an effort to curtail the power of the former ruling families, the Republic imposed high tax rates on their assets. Fiscal discrimination persisted, even after the introduction of the *catasti*. The tax rate for Arezzo was four times higher than that of Florence and citizens weren't allowed to make reductions for dependants as the Florentines were.[434] In a similar case, the city of Prato was purchased for 17,500 florins or 576 kg. silver by the Republic in 1351. Because of its early incorporation and close proximity to the political centre, Prato was one of only two cities to be included in the *contado* of Florence and, as a result, it was subjected to the same extractive system we discussed earlier.[435] Here,

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[431] Giuliana Biagioli, "The evolution of property rights in Tuscany, from the end of the Middle Ages to the nineteenth century," in *Contexts of Property in Europe: The Social Embeddedness of Property Rights in Land in Historical Perspective* (Turnhout: Brepolis, 2010), 66-68.

[432] Giuseppe Petralia, "1406: il dissolversi di una società tardocomunale come premessa alla costruzione di uno stato toscano," in *Firenze e Pisa dopo il 1406. La creasione di un nuovo spazio regionale. Atti del convegno di studi Firenze, 27-28 settembre 2008*, ed. Sergio Tognetti (Firenze: Leo S. Olschki, 2010), 124.

[433] For the emigration of elite families see: "'Crisi' ed emigrazione dei ceti eminenti a Pisa durante il primo dominio fiorentino: l'orizzonte cittadino e la ricerca di spazi esterni," in *I ceti dirigenti nella Toscana del Quattrocento* (Monte Oriolo: 1987).

[434] Robert Black, *Benedetto Accolti and the Florentine Renaissance* (Cambridge: Cambridge University Press, 2002), 1-12.

[435] See for example the taxations in: Fiumi, *Demografia movimento urbanistico*, 84-137.

the total stock of wealth declined to one fourth of its early fourteenth-century level by 1427 and per capita figures likewise fell as much as 10% over the course of a century (see Table 4.1).

Aside from the mode of conquest and the rate of extraction, another factor detrimental to the wealth of conquered territories in the long-term was the economic policy of Florence regarding textile production. For many Tuscan towns, such as the aforementioned Prato and Arezzo, the industry was by far the most important source of income and employed a significant share of the population. Above all others, Florence had been the leading centre of production, but in the last quarter of the fourteenth and beginning of the fifteenth century, the metropole faced a severe crisis. Between 1373 and 1430, annual output figures fell from 30,000 to 11,000 bolts of cloth.[436] To counter the negative trend, the city sought to reduce the competition within the borders of its Republic. The *Arta della Lana*, the wool guild of Florence, passed new statutes in 1428 that restricted production in other communities. From then on, the highest quality of wool, imported from Northwestern Europe, could only be processed in the capital. Artisans in smaller cities could only use certain types of inferior dyes and those in the countryside were not allowed to dye at all, which forced them out of the lucrative international market. In addition, Florence also came to dominate the regional market for cheaper cloths through tariffs and protectionist legislation. Unsurprisingly, the fifteenth-century revival of the textile industry in the capital was not mirrored in other places. The city of Pisa was hit extremely hard to the point that its wool guild simply ceased to exist.[437] In Prato, both the stock and per capita wealth further declined between 1427 and 1469, falling to almost half their previous level (see Table 4.1).

Together, all the above processes profoundly transformed the way wealth was geographically distributed in the Republic of Florence. Figure 4.1 plots the relative importance of the capital, other cities, and the countryside regarding the total population and wealth around 1300 and 1427. Demographically, a small change can be observed in favour of urban communities, stressing once again the depopulation of the countryside (its share in total declined by 6.4%). In terms of prosperity, a radical evolution has taken place however: whereas citizens of Florence held circa 28% of all wealth before the Black Death in the later territory of the Republic, they owned a staggering 67% of the total stock in 1427 even though

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[436]Goldthwaite, *The Economy of Renaissance Florence*, table 4.1.

[437] S.R. Epstein, *Freedom and Growth: The Rise of States and Markets in Europe, 1300-1750* (Routledge, 2000), 136-38.

FIGURE 4.1 THE DISTRIBUTION OF PEOPLE AND WEALTH IN THE REPUBLIC OF FLORENCE
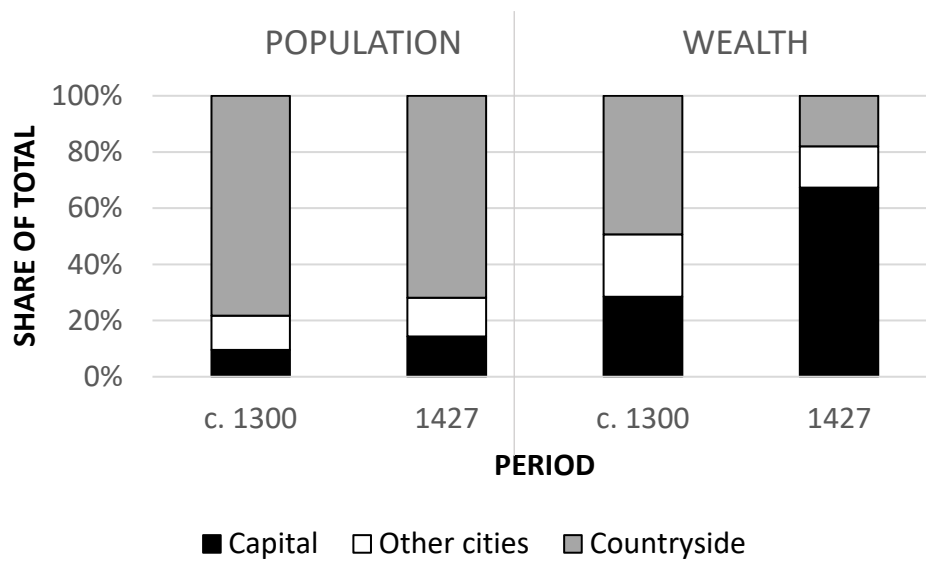
Sources: see Table 4.1

 they only represented 14% of the total population! Conversely, the share of rural households, by far the largest group (72% of the total population), fell from 49% to a meagre 18%. The loss for urban households outside the capital was less dramatic but still significant (from 22% to 15%). At least in this light, the emergence of a clearly tiered network with Florence at the top cannot be regarded as beneficial to the territory as a whole. The loss of political and economic independence proved unfavourable to the wealth of the vast majority of communities. Richard Golthwaithe was right to claim that late medieval warfare continuously redistributed wealth, but in the Republic of Florence this clearly went one way: towards its capital.

4.3 One for all. The County of Flanders

Contrary to the just discussed city-state, the Southern Low Countries did not witness an evolution towards an urban network dominated by a single city during the Late Middle Ages. In fact, population and power became more dispersed because of the decline of its textile producing metropoles, especially Ypres, and the concomitantly proliferation of its secondary cities, especially in Inland Flanders, Brabant, and the northern part of Hainaut. It is therefore interesting to explore if and to what extent this different type of urban network also resulted in a different distribution of wealth. For the Southern Low Countries, the best starting point to do so, would be the *honderdste penning* (literally, a hundredth of a coin), which was a wealth tax of 1% on all movable and immovable properties introduced by the Grand Duke of

Alba in 1569. The *honderdste pennning* marks the climax of a long history of increasing political and fiscal centralisation in this region over the late medieval and early modern period. For the first time, a uniform tax was levied across all territories that were part of the Habsburg Netherlands.[438] The revenue from the County of Flanders and the County of Hainaut can subsequently be transformed directly into wealth figures. Unfortunately, just as the Florentine *decima* (cfr. supra), the unit of assessment entailed the individual properties per community rather than the total stock held per residing household. Again, such taxes severely underestimate the wealth owned by urbanites as their rural assets were not accounted for in the assessment of cities. Moreover, the incomplete preservation of the detailed surveys and the uncertainty of record linking names across vast areas renders any attempt to reconstruct households' possessions near impossible. To assess the variation of financial capabilities within the two counties, we consequently need additional information.

Before the *honderdste penning*, the way general levies were collected was a multi-tiered process whereby partitioning within a juridical area was delegated to an ever-lower level. At the top level, representatives of all territories decided to approve financial requests of the dukes in a general assembly, called *Staten-Generaal*, after which they negotiated how the agreed sum would be divided amongst them. Next, each territory had its own *staten* where representatives of the nobility, clergy, and bourgeoisie discussed the quotes for each community or group of communities. In the latter case, intermediate governments, such as the castellanies in the County of Flanders, set the share of each town or village. Ultimately, local governments decided if and how they would tax residing households to pay their quote.[439] As we have mentioned in the introduction to this paragraph, this policy severely hinders any attempt to reconstruct the absolute wealth of larger regions through local surveys. However, the partition lists of the higher governmental levels do provide us with the relative financial capabilities of households in certain regions and communities, which may help us to assess the extent of rural possessions by citizens in the *honderdste penning*. Obviously, the comparability and accuracy of these lists are dependent on the criteria used by the representatives and the political nature of the negotiations. In many cases, certain communities agreed to pay a higher share in exchange for certain privileges.[440] As such, not all partitions are equally useful for our present objectives.

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[438] P. Stabel and F. Vermeylen, *Het fiscale vermogen in Brabant, Vlaanderen en in de heerlijkheid Mechelen: de Honderste Penning van de hertog van Alva (1569-1572)* (Brussel: Palais des Académies, 1997), 9-26.

[439] Arnould, *Les dénombrements de foyers*; Prevenier, "De beden in het graafschap Vlaanderen."; Maddens, *De beden in het graafschap Vlaanderen*; Zoete, *De beden in het graafschap*.

[440] Prevenier, "De beden in het graafschap Vlaanderen," 335.

For the County of Flanders, two types of partitioning at the county level have survived. On the one hand, multiple lists detail the effective sums cities and castellanies had to pay in different specific levies. The relative share of each contributor varies greatly from year to year, indicating that other factors besides wealth, such as political clout or financial reserves, played an important role. On the other hand, three lists of a more theoretical nature have been preserved. After the defeat of the comital armies in the first Franco-Flemish War (1297-1305), the conflicting parties agreed to recognise the County as an independent fief in exchange for the transfer of Walloon Flanders to the French Crown and a costly fine in the form of a lump sum and an annuity. To divide the burden of the restitutions equally among all communities, an assessment was made in 1309 of their fiscal capabilities that stipulated their quote in a fictional levy of 100 lb., called the *Transport* or cadastre of Flanders. The document served as a benchmark for negotiations when actual instalments of the fine had to be paid to the King and, later on, also for levies granted to the Count by the *Staten*, resulting in the first-mentioned type of partition lists. Although we are ill-informed about the modalities of the assessment, the fact that the first *Transport* remained in use for nearly a century speaks to its perceived value and the extent of work that had been put into it.

By the end of the fourteenth century, communities started to complain that the cadastre no longer reflected reality and several officials of different political bodies were appointed to redact a new survey in 1408.[441] Inevitably, this partition became outdated as well and another one was redacted in 1517, before (temporarily) giving way to the new system of the *honderdste penning*.[442] Various sources pertaining to these operations, such as letters and rapports, have been preserved and reveal how the shares in the *Transport* were determined. They show that the method was similar between 1408 and 1517. In both cases, local elites, mostly tax officials and aldermen, were instructed to deliver letters to a general commission, detailing the number of inhabitants and the extent of their wealth. Such a letter has been preserved for sixteenth-century Sint-Pauwels, a rural community 30 kilometres north-east of Ghent. Regarding demography, the aldermen of the village reported the number of occupied houses as well as the number of parishioners regularly receiving the Holy Communion. In regard to wealth, they presented the commission with their latest tax lists, which was levied

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[441] A first commission was appointed in 1395 but did not finish its task. A second one was installed in 1408 after a sizeable levy was granted to Count John the Fearless. Willy Buntinx, "De enquête van Oudenburg. Hervorming van de repartitie van de beden in het graafschap Vlaanderen (1408)," *Bulletin de la Commission royale d'Histoire* (1968): 76-77.

[442] Some changes were already made before 1517. For example, the share of Ypres was diminished in 1474 and the *Brugse Vrije* revised the partition within its own jurisdiction in 1476. "Het Transport van Vlaanderen. Bijdrage tot de geschiedenis van de financiële instellingen van het Graafschap Vlaanderen" (Rijksuniversiteit Gent, 1965), 160-77. A last revision of the *Transport* occurred in 1631. N. Maddens, "De transport van Vlaanderen. 1517-1631," in *Liber Amicorum Coppens Herman*, ed. Michel Van der Eycken and Erik Houtman (Brussel: Algemeen rijksarchief, 2007).

in accordance with the criteria applied in the *Transport*, namely the taxation of "income, goods, and immovable property."[443] For example, they mentioned the number of wood merchants and their profits. For landed property, they differentiated between types, such as farm, wood, or peat land. Their value was estimated through sale and lease prices minus all the (feudal) levies it was subjected to. A general rapport of the revision in 1408 likewise demonstrates the extensive efforts to appraise landed possessions throughout the County: even at this aggregate level, the commission documented the precise acreage and value of land lost due to inundation and sand drifts per castellany. The high degree of variation in prices per hectare suggests that multiple variables were taken into consideration.[444] In sum, it appears that the *Transports*, or at least the most recent two, assessed the relative fiscal capabilities of communities in Flanders based on an extensive, rather quantitative, survey of multiple assets. In this sense, the included components of wealth seem comparable to the ones we reported for the Republic of Florence in Table 4.1.

Contrary to the later *honderdste penning*, the three *Transports* seem to have followed the tradition of the comital land tax to assess the wealth of communities based on the assets of its residing members, whether or not these assets were located within the community. In 1307, just two years prior to the first cadastre, Count Robert of Béthune stipulated that urban households had to pay their quote only to the city they were living in, even if they possessed lands outside the urban jurisdiction. More directly related to the *Transports*, a general levy of 1477 was collected according to the residence of households and not according to the location of their goods. Some families tried to exploit this policy and hide the true extent of their wealth. For instance, in the run-up to the revisions of the cadastre in 1408, the aldermen of the Land van Waas complained that their share in the *Transport* was no longer reflecting their fiscal capacity because many wealthy farmers had purchased a small house in a city to be freed from their obligations to contribute in the communities of said castellany. Just as in the Florentine *catasti*, urban landownership in the countryside was thus regarded as part of the wealth of cities and was often exempt from rural taxation. Naturally, the practice caused much friction between communities. In 1497, representatives of the town of Blankenberge complained to the Council of Flanders, the comital court of law, that some rural officials had tried to tax the possessions of their citizens. The delegation demanded that these operations

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[443] "[...] dat zy yeghelic pointen ende zetten zullen naer teere ende neeringhe ende naer goet ende bedrijf" "Belastingen Sint-Pauwels te Waas," (Ghent: Rijksarchief Gent, 1517). f.1V. Partially published in: Buntinx, "Het Transport van Vlaanderen," 291-95.

[444] For instance, the loss of land in Oostburg was valued at 1.57 d./100 ha. whereas the unaffected lands in the region were estimated at 3.15 d./100 ha. Conversely, inundated properties in Ysendiek were appraised higher than the remaining lands (2.80 d./100 ha. versus 2.58 d.). "De enquête van Oudenburg," 106-08.

were ceased because it was customary "that anyone should pay his due share in the place he received the Holy Communion, resides, drinks, and eats, without having to pay taxes elsewhere due to the location of his lands or firms."[445] Most tellingly, the Council of Flanders ruled in favour of Blankenberge. In an effort to avoid this type of legal conflicts, proclamations of the new *Transport* of 1517 included more extensive stipulations about the unit of assessment. From now on, the place of residence was the definitive principle of taxation except for the revenue derived from directly operated farms, which was to be taxed at the place it was generated. This exception was only a very minor part of the total taxable assets as the value of those farmlands and their associated buildings were still assessed according to the residence of the owner.[446] Given the ambiguity in earlier *Transports*, it is unclear if this was a new rule or a clarification. In any case, there are no radical shifts in the fiscal capacity of communities between the different cadastres, which implies that assessments were conducted in a similar fashion. For example, the share of cities in the total fictional levy was 49.8% in 1309, 49.03% in 1408, and 44.0% in 1517. A clear break is only visible in the *honderdste penning* when urban landownership was included in the fiscal wealth of the countryside. Accordingly, the share of cities in the total tax plummets to 13.53%, a difference of two thirds.[447]

Although the most recent *Transport* and the first *honderdste penning* were separated by five decades, we might apply the partition of the former to the absolute figure of the latter to gain an impression of the geographical distribution of wealth in the County of Flanders during the first half of the sixteenth century. For the earlier cadastres of 1309 and 1408, we do not have a comparable estimate of the total wealth. However, since the *Transports* are based on the relative differences in fiscal capabilities between communities, it is in theory sufficient to know the wealth owned in one of them: to calculate the total richness of the County, we simply have to divide the figure for a single community by its percentage share in the whole partition table. For the first half of the fifteenth century, we are well-informed about the wealth owned by the citizens of Kortrijk. Here, in 1440, the aldermen taxed all solvable households for 0.3% of their total wealth, which resulted in a (theoretical) revenue of 61,384 d. gr. or the equivalent of circa 16,664 kg. silver worth of assets.[448] Given that Kortrijk had to

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[445] "Het Transport van Vlaanderen," 193.

[446] Ibid., 101-206. It is noteworthy that Buntinx believes that the *Transports of* 1309 and 1408 were based on location, whereas only the cadastre of 1517 employed the principle of residence. This seems improbable when comparing the three cadastres and the *honderdste penning (*see main text).

[447] Prevenier, "De beden in het graafschap Vlaanderen."; Buntinx, "De enquête van Oudenburg."; Maddens, *De beden in het graafschap Vlaanderen*; Stabel and Vermeylen, *Het fiscale vermogen*.

[448] Pauwelyn, "De gegoede burgerij van Kortrijk in de 15e eeuw (1433-1496)."

contribute 1.26% in the *Transport* of 1408, the total stock of wealth in the County of Flanders can be estimated at 1,321,428 kg. silver around that time. Unfortunately, we do not possess of a similar taxation list for the early fourteenth century. Nevertheless, we have tried to estimate the stock of wealth through some assumptions about the royal fine imposed on Flanders after the first Franco-Flemish war. To test its robustness, we have also modelled the GDP of Ypres in two different ways. Just as in the case of Florence, we have opted to keep the lengthy discussion of these specific cases to the Appendix (see 4.2 The wealth of the County of Flanders c. 1300). The implied figures per city and castellany based on the three different cadastres are reported in Table 4.2. It is important to note that we do not know the precise share of all cities. As a result, the figures for some rural areas might be overestimated. This is especially the case for the Land of Dendermonde, the Land of Aalst, and the Vier Ambachten, where some important medium-sized cities were included in the partitioning of the castellany (their urban population respectively amounted to 36.2%, 13.5%, and 13.6% of the total based on demographic figures for 1469, see below).[449] At a county level, the impact on rural wealth is rather limited given that the majority of omitted cities constituted small towns with less than 2,000 inhabitants (in total, the urban population included in the *Transport* of the countryside amounts to circa 7.5% in 1469).

Compared to the fiscal sources for the Republic of Florence, the partition table has the upside of providing us with a cross-section of the entire region, but it has the downside of lacking any demographic information. To transform the absolute wealth levels into per capita figures, we thus need to make some extrapolations based on the limited information available in literature. Most extensive data stems from the hearth count of 1469, studied by Walter Prevenier. He estimates the total inhabitants of Flanders, excluding the territories of Lille, Douai and Orchies, at 660,738 persons.[450] According to Peter Stabel, 35% of this population was living in towns. At the time of the first *Transport*, this figure was even higher, probably about 40%.[451] For the first half of the fourteenth century, we have some demographic data for seven, mostly larger cities, that can be confronted with the hearth census of 1469.[452] Together, they represent about 60% of the urban population and show a decline of circa 20%.

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[449] Demographic figures taken from Prevenier, "La démographie des villes."

[450] Ibid., 270.

[451] For these figures, towns were defined by having city rights. Contrary to the more common approach in historiography, a minimum population was not considered and urbanisation rates are therefore higher than those found in other studies. Nevertheless, Stabel's definition fits our data better because the *Transports* included many tiny towns with just a few hundred inhabitants. Stabel, *Dwarfs Among Giants*, 19-34.

[452] These include Ghent, Bruges, Ypres, Sluis, Nieuwpoort, Aardenburg, and Monnikerede. See appendix 4.3 and Table 4.2 for sources.

TABLE 4.2   TOTAL TAXABLE WEALTH (A) AND PER CAPITA WEALTH (B) IN THE COUNTY OF FLANDERS, 1309-1569 (IN KG. SILVER)

	1309		1408		1517-1569	
	A	B	A	B	A	B
A) Cities (in order of pop.)						
Ghent	189,453	(2.706)[1]	176,972	(3.539)[2]	280,183	6.674
Bruges	208,090	3.468	209,467	6.666	286,144	7.530
Ypres	146,706	4.890	114,371	10.904	139,098	13.910
Sluis	12,995	2.926	26,662	3.950	7,948	6.114
Oudenaarde	9,404		9,998	1.754	20,865	2.469
Kortrijk	20,518		16,664	3.252	21,858	2.301
Duinkerke	3,249		6,666	(1.319)[2]	23,845	
Poperinge	16,757		19,997	4.545	12,916	
Diksmuide	11,855		13,331	3.873	6,955	
St Winoksbergen	5,985		6,666	(2.361)[2]	8,942	
Nieuwpoort	8,549	2.044	9,332	3.662	(12,859)[3]	
Veurne	4,617		5,332	(2.926)[2]	4,968	
Belle	1,254		1,833	(1.050)[2]	(2,650)[4]	
Ninove	n/a		2,333	1.398	(3,246)[4]	1.656
Damme	5,985		5,999	5.441	1,987	
Aardenburg	10,772	2.154	3,999	(3.764)[2]	1,987	1.987
Oostende	1,026		1,666	(1.827)[5]	5,961	
Oudenburg	2,907		3,333	(3.794)[2]	1,987	
Biervliet	5,301		2,666	(3.451)[2]	1,987	
Blankenberge	2,565		1,000	1.295	3,477	
Broekburg	2,736		2,666	(3.765)[2]	1,490	
Oostburg	2,223		1,666	(3.077)[2]	994	1.987
Gistele	1,197		1,333	(2.465)[2]	2,981	
Torhout	2,052		2,000	(3.882)[2]	994	
Loo	684		833	(1.718)[2]	2,981	
Kassel	513		705	(1.484)[2]	(861)[4]	
Monnikerede	570	1.267	555	1.389	199	
Lombaardsijde	684		667	(1.979)[2]	(1,051)[3]	
Greveninge	570		667	(2.071)[2]	1,490	
St Anna ter Muide	342		500	1.976	248	
Hoeke	456		222	1.262	596	8.516
Moerdijke	228		139	(1.140)[2]	397	
Waterduin	684		Drowned		Drowned	
Roeselare (near Aardenburg)	456		Drowned		Drowned	
Oud-Ysendijk	456		Drowned		Drowned	
Langardeburg	228		Drowned		Drowned	
Hoogvliet	171		Drowned		Drowned	
Total cities	682,064	(2.364)[6]	650,241	(4.535)[2]	864,147	(5.761)[7]

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	1309		1408		1517-1569	
	A	*B*	*A*	*B*	*A*	*B*
B) Countryside and mixed (included cities in Brackets)						
Coastal Flanders						
- Brugse Vrije (Middelburg)	182,442		158,697	(1.648)[2]	200,699	
- Veurne	61,897		60,657	(3.876)[2]	103,330	4.329
- St.-Winoksbergen	46,679	(1.489)[8]	43,993	(3.403)[2]	85,446	
- Broekburg	8,720		8,999	(3.301)[2]	12,916	
- Vier Ambachten (Axel, Hulst)	42,063		33,328	(1.347)[2]	35,768	
- Total Coastal Flanders	341,801		305,673	(2.006)[2]	438,159	
Inland Flanders						
- Aalst (Aalst, Ronse, Geraardsbergen)	94,726		98,651	1.738	178,840	1.967
- Kortrijk (Deinze, Menen, Tielt)	50,441		57,824	(2.205)[2]	103,330	
- Waas (Ruppelmonde)	54,545		48,937	(2.116)[2]	80,478	
- Kassel (Watten)	29,068		39,288	(1.774)[2]	94,388	
- Oudburg (Eeklo, Kaprijke)	36,078		30,662	(1.947)[2]	48,188	
- Belle	15,047		20,163	(2.693)[2]	36,762	
- Ieper (Mesen, Wervik)	28,726		29,329	(2.199)[2]	55,639	
- Oudenaarde	13,850		14,664	1.102	35,271	1.495
- Dendermonde (Dendermonde)	17,270		19,997	(1.946)[2]	38,749	
- Waasten (Komen, Waasten)	5,130		5,999	(1.881)[2]	12,916	
- Total Inland Flanders	344,879		365,514	(1.908)[2]	684,561	
Total countryside	686,681	(1.587)[6]	671,187	(1.951)[2]	1,122,719	(1.856)[7]
C) County of Flanders						
Total (excl. Walloon Flanders)	1,368,744	(1.898)[6]	1,321,428	(2.727)[1]	1,986,866	(2.632)[7]

Notes:

1. Based on the population figure of 1356-58 adjusted for the Black Death in accordance to the decline of parishioners receiving assistance from the Table of the Holy Spirit in Ghent in 1349 (ca. -20%).

2. Based on the demographic evolution in the Land of Aalst, the castellany of Oudenaarde and the cities with data (together ca. 40% of total population) between 1408 and 1469.

3. Lombaardsijde and Nieuwpoort taxed together. Wealth based on the average share of each town in earlier periods.

4. Based on the share of 1408 because these towns were replaced by Wervik in the partition of 1517.

5. Based on the number of taxed households in 1409, adjusted with the share of intra muros households in 1469.

6. Based on the demographic evolution in cities with data (ca. 75% of the urban population) between 1309 and 1469 and assuming 40% of the population living in cities in 1309 versus 35% in 1469.

7. Based on the demographic evolution in the Land of Aalst, the castellany of Oudenaarde, Veurne Amacht and cities with data (ca. 33% of total population) between 1469 and 1569, confirmed by trends in the neighboring regions of Brabant and Hainaut.

8. Based on the number of a partial tax list for the castellany in 1308 (ca. 20% of the population).

Sources:

Appendix 4.2; Appendix 4.3; Demey, J. "Proeve Tot Raming Van De Bevolking En De Weefgetouwen Te Ieper Van De Xiie Tot De Xviie Eeuw." *Revue belge de Philologie et d'Histoire* 28, no. 3-4 (1950): 1031-48; Prevenier, W. "De Beden in Het Graafschap Vlaanderen Onder Filips De Stoute (1384-1404)." *Revue belge de philologie et d'histoire* 38, no. 2 (1960), 330-65 ; De Smet, Jos. "1820-1840 in De Sint-Guthagostreek - Hoeke (1ste Deel)." *Rond de poldertorens* 4 (1961), 123; Buntinx, Willy. "De Enquête Van Oudenburg. Hervorming Van De Repartitie Van De Beden in Het Graafschap Vlaanderen (1408)." *Bulletin de la Commission royale d'Histoire* (1968), 75-137; Blockmans, W. P. "Peilingen Naar De Sociale Strukturen Te Gent Tijdens De Late 15e Eeuw." In *Studiën Betreffende De Sociale Strukturen Te Brugge, Kortrijk En Gent in De 14e En 15e Eeuw*, edited by W. P. Blockmans, Ingrid De Meyer, J. Mertens, C. Pauwelyn and W. Vanderpijpen. Heule: UGA, 1971, 253-54; Maddens, Nicolaas. *De Beden in Het Graafschap Vlaanderen Tijdens De Regering Van Keizer Karel (1515-1550)*. Heule: UGA, 1978; Vandewalle, Paul. "Stabilité Et Perfection D'un Système Agricole : La Châtellenie De Furnes." *Annales* (1981), 382-83; Prevenier, W. "La Démographie Des Villes", 255-75 ; Thoen, Erik. "Landbouwekonomie En Bevolking in Vlaanderen Gedurende De Late Middeleeuwen En Het Begin Van De Moderne Tijden. Testregio: De Kasselrijen Van Oudenaarde En Aalst (Eind 13de- Eerste Helft 16de Eeuw)." PhD thesis, Rijksuniversiteit Ghent, 1988, 36-41; Klep, Paul. "Population Estimates of Belgium, by Province (1375-1831)." In *Historiens Et Populations. Liber Amicorum Etienne Hélin*, edited by Société belge de démographie, 485–507. Louvain-la-Neuve: Academia, 1991, tables 7 and 8; Zoete, A. *De Beden in Het Graafschap Vlaanderen Onder De Hertogen Jan Zonder Vrees En Filips De Goede (1405-1467)*. Brussel: Paleis der Academiën, 1994; Stabel, Peter. *De Kleine Stad in Vlaanderen*, 17-24; Stabel, P., and F. Vermeylen. *Het Fiscale Vermogen in Brabant, Vlaanderen En in De Heerlijkheid Mechelen: De Honderste Penning Van De Hertog Van Alva (1569-1572)*. Brussel: Palais des Académies, 1997; Stabel, P., *Dwarfs among Giants: The Flemish Urban Network in the Late Middle Ages*. Studies in Urban Social, Economic and Political History of the Medieval and Modern Low Countries. Antwerpen: Garant, 1997, 19; Van Bavel, Bas. "People and Land: Rural Population Developments and Property Structures in the Low Countries, C. 1300 - C. 1600." *Continuity and Change* 17 (2002), 13; Devliegher, L. "Pero Tafur in Brugge, Sluis En Antwerpen (1438)." *Handelingen van het Genootschap voor Geschiedenis* 140, no. 3-4 (2003), 271; Van Steensel, Arie. "Bewoning En Sociale Structuren, 1300-1550." In *Geschiedenis Van Zeeland: Prehistorie-1550*, edited by P. Brusse and P. Henderikx, Zwolle: Wbooks, 2012, 216; Vermeersch, Joren. *1349: Hoe De Zwarte Dood Vlaanderen En Europa Veranderde*. Antwerp: Uitgeverij Vrijdag, 2019; Lambrecht, Thijs, and Mathijs Speecke. "Economic Structures, Vulnerability and Popular Protest in Rural Flanders, C. 1300-1320." (forthcoming).

If we extrapolate this trend to all cities mentioned in the *Transport* and divide the result by the aforementioned urban share, we can guesstimate that around 720,000 people were living in the County around 1309. In a similar fashion, we can project the trends of seventeen cities and two castellanies (ca. 40% of the total population) between the early fifteenth century and 1469 onto the transport of 1409.[453] With some 480,000 inhabitants, the demography of Flanders probably hit its lowest point of the late medieval and early modern period. It is clear that the region did not escape the impact of the consecutive plague waves as is sometimes claimed in historiography (see general introduction), though losses were not as drastic as in

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[453] Included cities: Ghent, Bruges, Ypres, Sluis, Oudenaarde, Kortrijk, Poperinge, Diksmuide, Nieuwpoort, Ninonve, Damme, Oostende, Blankenberge, Monnikerede, St Anna ter Muide, Hoeke, and Ysendijk. Included rural areas: Land of Aalst and the castellany of Oudenaarde. See Table 4.2 for sources.

the Republic of Florence. For the period of the last *Transport* and the *honderdste penning*, Paul Klep estimated the population of the County at 700,000 inhabitants, but this did not include the areas that are presently situated outside the borders of Belgium, such as the northern parts of the Vier Ambachten and the castellanies east of Veurne and Ypres.[454] For the neighbouring regions of Hainaut and Brabant, Blockmans et al. suggested an increase of 13 à 14% in the number of inhabitants during the first half of the sixteenth century. A similar trend in Flanders is possible and implies a figure of around 760,000 people. The result is consistent with the figure we find when extrapolating the trends of ten cities and three castellanies (ca. 33% of the total population) between 1469 and the *honderdste penning*: while the number of citizens declined by 22%, the number of rural households expanded rapidly by 32%, resulting in a total population of circa 750,000.[455]

Let us now turn to the results of Table 4.2. In the early fourteenth century, the County of Flanders was probably richer than the Republic of Florence given that the stock of wealth of the latter was only 56.3% of that of the former. This might be surprising based on the historiographic idea of the economic supremacy of Italian city-states in this period, but two remarks need to be made. First, large fortunes and economies were present in the whole of Tuscany, like in Pisa and Siena, and Northern and Central Italy in general, like in Venice and Genoa. By contrast, such concentrations seem to have been less prevalent in the Southern Low Countries outside Flanders (cfr. infra, the case of the County of Hainaut).[456] By extension, the grand economic hubs of early modern Northwestern Europe, like Holland and South East England, were still very much developing.[457] Flanders was thus the exception in this part of the continent, whereas Florence was just one of several big players in the Mediterranean area. Secondly, the Republic of Florence compromised one fifth of the territory it would rule by 1427, an area that was only one fourth of the acreage controlled by the County of Flanders. It is therefore more useful to compare the average wealth per capita. At the macro level, this seems to have been rather similar with an average of about 1.900 kg. silver per inhabitant in both polities. If we look at the territory within the later borders of

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[454] Paul Klep, "Population Estimates of Belgium, by Province (1375-1831)," in *Historiens et populations. Liber Amicorum Etienne Hélin*, ed. Société belge de démographie (Louvain-la-Neuve: Academia, 1991), table 7.

[455] Included cities: Ghent, Bruges, Ypres, Sluis, Oudenaarde, Kortrijk, Ninove, Aardenburg, Oostburg, and Hoeke. The castellanies included Veurne, Aalst, and Oudenaarde. See Table 4.2 for sources.

[456] Walloon Flanders was the most important exception and probably achieved wealth levels comparable to those in the County of Flanders. However, in this period, the region had just been ceased to the Kingdom of France and its economy is therefore better seen as a part of the County. Moreover, its demographic and geographic importance was relatively limited compared to other regions in the Southern Low Countries.

[457] Bas van Bavel and Jan Luiten van Zanden, "The Jump-Start of the Holland Economy during the Late-Medieval Crisis, c.1350-c.1500," *The Economic History Review* 57, no. 3 (2004); Malanima, "When did England overtake Italy?."

1427, Flanders appears wealthier once again (1.898 versus 1.488 kg. silver). These results corroborate our earlier observations in regard to wage levels and the Little Divergence (see Chapter One): the Flemish economy certainly produced enough wealth to pay the high wages unobserved for the rest of late medieval Europe.

Moving from the general level to the geographic distribution in both regions, differences are more outspoken. In early fourteenth-century Flanders, the concentration of wealth was significantly lower in the metropoles (the average wealth per capita in Ypres, Ghent and Bruges was 3.402 kg. silver versus 4.763 kg. silver in Florence) and cities in general (2.364 versus 3.472 kg. silver). Reversely, levels in the countryside were much higher (1.587 versus 0.986 kg. silver). These observations can be explained by differences in the social profile of the elites and the nature of the economy. In the Republic, the majority of elites were burghers who, as we have seen, gradually expanded their political and economic control over the *contado*. In Flanders, the political landscape was more fragmented between the nobility, clergy, and burghers. The former two often resided in the countryside where they held large estates. Competition between the three elite groups resulted in secure property rights of local farmers and kept the levels of absentee ownership in check. Moreover, better soil conditions and more advanced agricultural techniques probably resulted in higher yields, and thus wealth, in the last-mentioned region.[458] Indeed, even though Flanders boosted one of the highest urbanisation ratios of late medieval Europe, here, the countryside still generated half of the total wealth. It is no coincidence that the Brugse Vrije, the richest castellany (representing 13.3% of the total wealth), would eventually join the metropoles of Bruges, Ghent, and Ypres (representing on average also 13.3% of the total each) at the end of the fourteenth century as the fourth member in the *Staten* of Flanders with decision-making power, thereby capitalising its financial weight into political clout. Remarkably, the average wealth per capita in some rural castellanies could rival the levels found in some of the smaller towns of the County, something we cannot find for any Tuscan community. Again, this conforms to trends found in our wage data, where only a limited urban wage premium could be identified (see Chapter One).

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[458] Erik Thoen, "The Birth of 'The Flemish Husbandry': Agricultural Technology in Medieval Flanders," in *Medieval Farming and Technology: The Impact of Agricultural Change in Northwest Europe*, ed. Grenville Astill and John Langdon (Leiden: Brill, 1997).

FIGURE 4.2   THE EVOLUTION OF WEALTH IN DIFFERENT TYPES OF COMMUNITIES IN THE
COUNTY OF FLANDERS (1309-1569)
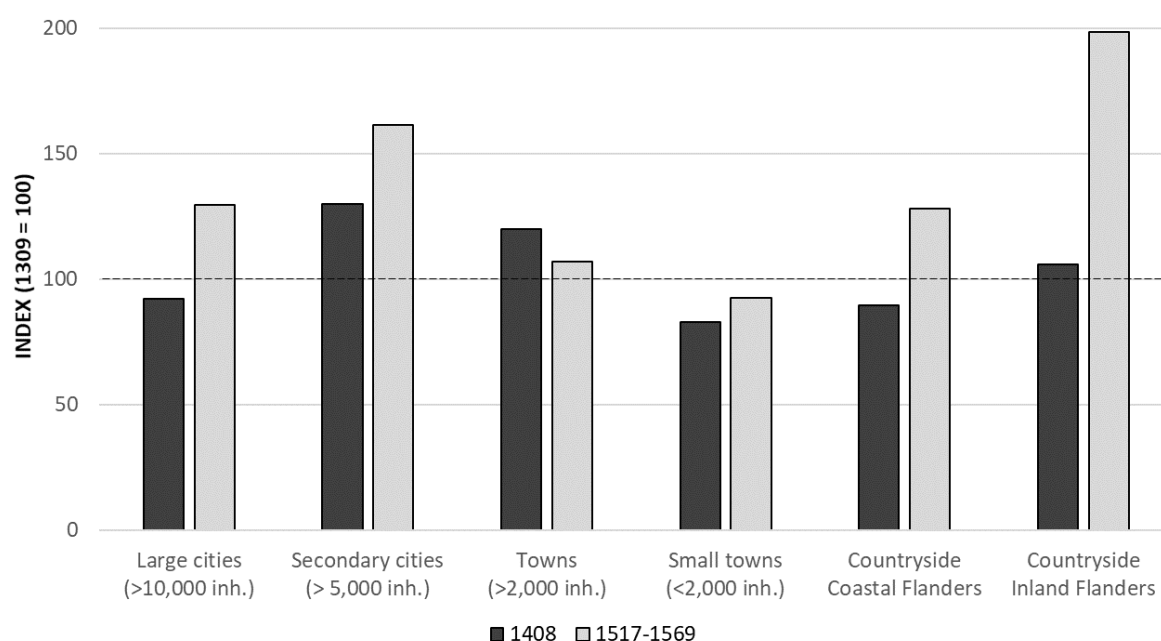
Notes: Excluding Aardenburg (see text for reason). Number of inhabitants determined by the average for the three Transports to keep the number of observations per category fixed.

Sources: see Table 4.2

Just as elsewhere in Europe, the crisis of the Late Middle Ages posed a significant challenge to the County of Flanders. A deadly cocktail of climate change, famines, plagues, and warfare pushed the population figure to its nadir around 1400 (cfr. supra). Nevertheless, Table 4.2 reveals that, by this date, the total stock of wealth was already returning to its early fourteenth-century level (only 2.6% lower). Such an evolution stands in stark contrast to the disastrous freefall we observed earlier for the Republic of Florence. It appears that the Flemish economy was much more able to adapt itself to the new circumstances. The combination of a multinuclear urban network and a contested political landscape, allowed for a high degree of flexibility: whenever the flows of trade changed or new markets opened up, communities with an advantageous location or infrastructure were relatively free to seize these opportunities as protectionist measures, like those imposed by Florence on the textile industry, were either absent or ineffective without the political power to enforce them

throughout the County.[459] As mentioned in the introduction of this paragraph, when the traditional textile industry faced an international crisis and the three metropoles reoriented themselves towards luxury cloths, smaller and secondary cities profited greatly by catering to the middle segment, both at the domestic and international market, albeit the latter to a lesser extent. This trend was not limited to the textile industry and several cities specialised in other, standardised consumer goods, like beer.

In his seminal study on smaller cities in Flanders, Peter Stabel already stressed the economic dynamism of these communities during the fourteenth and fifteenth century.[460] Based on our reconstruction of wealth levels, he was very much right. Figure 4.2 presents the evolution of total wealth, expressed as an index with 1309 as the base year, for different types of settlements in the County of Flanders. For the countryside, we distinguished between two different socio-agrosystems, a topic to which we shall return in a moment. For the cities, we distinguished between four groups according to their average population across the three sample years. Given that the revisions did not include new cities in the *Transports*, except for Ninove and Wervik as a replacement for (temporarily) lost or bankrupted cities, this methodology allows us to follow a fixed dataset of communities through time. The potential downside is that it doesn't allow for any movement between categories, though, in practice, this wasn't a problem because the categories were so broadly defined that only one community, namely Aardenburg, experienced such a dramatic change in population. Aardenburg was subsequently removed from the analysis. Figure 4.2 shows that cities between 2,000 and 10,000 inhabitants indeed witnessed a significant increase in wealth by the fifteenth century (in total, +24.8%). The greatest success stories are those of the port cities of Dunkerque and Sluis, who were able to double their wealth during the fourteenth century thanks to their strategic position in a rapidly changing trade network.[461] Meanwhile, all other

[459] Some restrictions for textile production were present in the vicinity of the old manufacturing centres, such as Ypres and Ghent. However, these measures were seldom effective and several towns and villages were able to develop their own industry. See for example the case of the West-Quarter. Tim Soens, Peter Stabel, and Tineke Van de Walle, "An Urbanised Countryside? A Regional Perspective on Rural Textile Production in the Flemish West-Quarter," in *Economies, Public Finances, and the Impact of Institutional Changes in International Perspective. The Low Countries and Neighbouring German Territories*, ed. Remi Van Schaïk, Studies in European Urban History (1100-1800) (Turnhout: Brepols, 2015). For some products, like grain, wool and wine, staple rights existed but this did not prevent merchants from other cities to engage in the trade of said products. See for example the case of grain : Marie-Jeanne Tits-Dieuaide, "Le grain et le pain dans l'administration des villes de Brabant et de Flandre au Moyen-Age," in *Het openbaar initiatief van de gemeenten in België, historische grondslagen (ancien régime)*, ed. W. Prevenier (Brussels: Gemeentekrediet van België, 1984), 485-89.
[460] Stabel, *De kleine stad in Vlaanderen*; *Dwarfs Among Giants*.
[461] Dunkerque became the most important trading port for the French Crown in the northern regions after the English conquest of Calais in 1347 and the continuous threats towards Gravelines. Stéphane Curveiller, *Dunkerque Ville & port de Flandre à la fin du Moyen Âge: A travers les comptes de baillage de 1358 à 1407* (Lille: Presses Universitaires de Lille, 1989). Sluis witnessed an explosive growth as an outer port of Bruges which could no longer receive large vessels due to

types of settlements experienced only marginal gains or, more often, pronounced decline in wealth. Cities and villages in the Vier Ambachten suffered the most as the threat of storm surges demanded continuous investments in costly water management or risked being swallowed by the encroaching sea (see the lost cities in Table 4.2).[462] Obviously, experiences could vary greatly within each category. At the top the urban pyramid, for example, Bruges was able to withstand the downfall of its traditional textile industry thanks to a diversification of its economy. The stock of wealth remained relatively stable with a 0.7% increase between 1309 and 1408, despite the loss of half of its population. The expansion of its luxury industry and commerce obviously played an important role, but it was foremost the production of fashionable consumer goods for middling groups that proved critical in the successful transformation of its economy (see Chapter 2.3 Hire or fire).[463] In this sense, the success of the secondary cities and towns was largely a reproduction of the model set out by Bruges, albeit at a more limited scale and from a later date on. At the bottom of the pyramid, we also find several prospering small towns, like the fishing town of Oostende (62% increase in total wealth) or the administrative centre of Cassel (+38%).

Far more consistent, is the trend in the average wealth per capita. Every observation showcases a strong increase between 1309 and 1408: on average, the level increased from 1.898 to 2.727 kg. silver. Most importantly, the polynuclear network was characterised by relatively minor differences in the wealth per capita and universal high levels compared to the monocentric economy of the Republic of Florence. In fifteenth-century Flanders, inhabitants of the richest community owned on average ten times as much as those of the poorest compared to a difference of factor 25 in the Republic. Likewise, the standard deviation was significantly lower (1.700 versus 2.031 kg. silver). Outside the capital of Florence, the average wealth per capita was rather limited. As we have seen, the level had been declining in most communities over the course of the fourteenth and fifteenth century (from 1.172 kg. c. 1300 silver to 0.795 kg. silver in 1427 if we exclude Florence). In contrast, the picture for Flanders does not change too much when we leave out the large cities of Ypres, Bruges, and Ghent: average wealth per capita still increased from 1.469 to 2.120 kg. silver or three times as high as the Florentine figures! Subsequently, potential markets for fashionable consumer goods were probably

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the tidal canals slitting up. Ward Leloup and Bram Vannieuwenhuyze, "Damme en Sluis: de oorsprong en vroege stadsontwikkeling van twee middeleeuwse Zwinstadjes," *Handelingen van het Genootschap voor Geschiedenis* 150 (2013).
[462] Stabel, *De kleine stad in Vlaanderen*, 112-15. On the impact and management of storm surges see: A.M.J. de Kraker, *Landschap uit balans: de invloed van de natuur, de economie en de politiek op de ontwikkeling van het landschap van de Vier Ambachten en het Land van Saeftinghe tussen 1488 en 1609* (Utrecht: Uitgeverij Matrijs, 1997); Soens, *De spade in de dijk?*
[463] Stabel, *A Capital of Fashion. Guilds and Economic Change in Late Medieval Bruges*.

more widespread in the County and might explain why so many secondary cities and towns could expand their local and regional services in this period, thereby reinforcing the already existing polynuclear network. The universal high levels of average wealth per capita suggest that purchasing power was high across the territory, generating an important domestic demand that provided new opportunities for the economy outside the international markets for textile. The fifteenth-century County of Flanders therefore fits Goldthwaite's preconditions for a material Renaissance much better than the Republic of Florence, at least in terms of the geographical distribution of wealth.

The proliferation of secondary cities and towns continued during much of the fifteenth century. However, by the last quarter of the century, new challenges started to arise: the Price Revolution eroded purchasing power, the Flemish revolt against Maximilian of Austria (1482-1492) caused severe economic disruption, and the rise of Antwerp as the new commercial gateway redrew trading routes once again. The economic centre of the Low Countries was gradually moving towards the Brabantine cities. By 1569, the average wealth per capita had started to decline though it was still higher compared to the early fourteenth century (2.632 kg. silver per inhabitant). Figure 4.2 shows that towns with a population between 2,000 and 5,000 inhabitants were the first to experience a downturn in their stock of wealth (losing about 10% of its previous level). Due to their smaller scale, they probably had less resources to combat the negative trends and secure their position in a highly competitive market where they could not match the low wages in the countryside nor the high level of expertise found in larger cities. Nevertheless, the Flemish economy was far from collapsing. At the top, large and secondary cities were able to cement their (inter)regional functions, sometimes at the disadvantage of the aforementioned smaller towns. For example, the city of Ghent, situated at the nexus of four important riverways, became increasingly dependent on its role as a redistribution centre for grain and textile to compensate its shrinking cloth production. Yet, the growth of its urban wealth in the sixteenth century must be attributed to the rapid expansion of the Flemish linen industry.[464] Although several cities besides Ghent capitalised on the increased demand for lighter textiles, such as Aalst, Kortrijk, or Tielt, the bulk of the activities were located outside the regulated urban environments. Above all, rural households in Inland Flanders engaged in the production of linen.[465] In the middle of the sixteenth century, almost half the population in the countryside of Oudenaarde possessed a loom to process its own cultivated flax.[466] Accordingly, this castellany witnessed

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[464] Johan Dambruyne, *Mensen en centen: het 16de-eeuwse Gent in demografisch en economisch perspectief* (Gent: Maatschappij voor geschiedenis en oudheidkunde, 2001), 181-344.

[465] Sabbe, *De Belgische vlasnijverheid.*, 1.

[466] Thoen, "Landbouwekonomie en bevolking," 993-97.

one of the most pronounced increases in the total stock of wealth (from 14,664 kg. silver in 1408 to 35,271 kg. silver in 1569). In general, gains in Inland Flanders were exceptionally high as Figure 4.2 shows that levels almost doubled here.

In the countryside of Coastal Flanders, proto-industrialisation remained limited. The stock of wealth did increase but more in line with the levels observed for the large and secondary cities (+43.3%). On the other hand, the average wealth per capita rose to more than double the levels observed for Inland Flanders. For example, inhabitants possessed on average 4.329 kg. of silver in Veurne Ambacht versus 1.495 kg. of silver in the castellany of Oudenaarde (see Table 4.2). To explain these contrasting trends, we must look at the characteristics of the two social-agrosystems. As described in Chapter One, both systems were still relatively similar in terms of holding sizes and number of large landowners at the beginning of the fourteenth century, but started to diverge afterwards due to the already existing differences in soil conditions, property rights, income strategies, and power structures. Our wealth data show that differences between Inland and Coastal Flanders were not yet visible around 1309. In the coastal castellany of Sint-Winoksbergen, the average wealth per capita was still below the rural average, which is consistent with the dominance of small holdings observed in contemporary taxation (1304) and confiscation lists (1315-1316).[467] A century later, this picture had drastically changed. Ecological pressure and the insufficient investment in water control had led to the impoverishment of many small holders, whose plots were subsequently bought up by (absentee) large landowners and leased out to big farmers. The emergence of a highly competitive lease market generated an economic mindset aimed at the creation of profitable farms. Moreover, the sudden demographic decline after the Black Death and the accompanying increase in real wages probably pushed these commercial farmers to more extensive forms of agriculture, such as cattle breeding, which resulted in a decline in labour opportunities in Coastal Flanders for the already struggling small holders. Therefore, the simultaneous decline in the total stock of wealth and strong increase in the average wealth per capita (see especially Sint-Winoksbergen, Veurne, and Broekburg in Table 4.2) must be interpreted as the result of the gradual replacement of the peasant class by a wealthier strata of large lease farmers. In this context, the intensive cultivation of flax and its labour-intensive processing in the domestic sphere made little sense. By contrast, small holders in Inland Flanders were able to hold onto their plots thanks to a more divided elite. Here, the survival of the family took centre stage and farms were divided among the different offspring to secure

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[467] Geens, "The Great Famine in the county of Flanders (1315–17): the complex interaction between weather, warfare, and property rights," table 3; Thijs Lambrecht and Mathijs Speecke, "Economic Structures, Vulnerability and Popular Protest in Rural Flanders, c. 1300-1320," (forthcoming).

their income. As population figures started to surpass their early fourteenth-century levels, pressure on land started to increase. Small holders had to look for additional sources of income as plots became too small to survive on grain cultivation alone.[468] As Table 4.2 shows, the flax and linen production or, more generally, the intensive cultivation and processing of cash crops for the urban markets proved successful in keeping the average wealth per capita at the same levels during the fifteenth and sixteenth century.[469]

4.4 The third musketeer. The County of Hainaut

Given that there are currently no studies that provide us with a readily available benchmark, the geographic distribution of wealth in the County of Hainaut may help to put the levels observed in Flanders and Florence into perspective. How far ahead were both regions during their time? The case of Hainaut can be illustrative because its economy resembled a more traditional late medieval European pattern. Outside two regional centres with about 10,000 inhabitants each, urbanisation was mainly limited to small towns of less than 2,000 inhabitants that served as markets for their immediate hinterland. Only in the northern parts, an important concentration of industrial activities developed from the end of the thirteenth century and attracted international commerce.[470] However, as a whole, the economy of Hainaut remained very much focused on agriculture throughout the Middle Ages.[471]

For the County of Hainaut, many fiscal records have been lost due to a fire in the state archives of Mons in 1940. The most important exception is the city of Mons, for which sources were kept in the municipal archives at a different location. In the previous chapter (see 3.1 To tax or not to tax?), we calculated tax rates for the *taille* of 1279-1281, which was imposed on both movable and immovable assets.[472] Consequently, it should be possible to convert the different quotes into wealth figures comparable to the ones calculated for Flanders and Florence. However, the *taille* has not been preserved for all wards of the city.

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[468] For a general overview of the evolutions in the two agro-systems, see Thoen and Soens, "The family or the farm: a Sophie's choice? The late medieval crisis in Flanders."

[469] See also the reconstruction of household income based on linen weaving in C. Vandenbroeke, "Sociale en konjunkturele facetten van de linnennijverheid in Vlaanderen (late 14e-midden 19e eeuw)," *Handelingen van de maatschapij voor Geschiedenis en Oudheidkunde te Gent* 33 (1979): 124-39.

[470] In this chapter, northern Hainaut is defined as any community north of Mons, whereas the southern region is defined as any community south of Maubeuge. The area around Mons is seen as a transitionary zone. Obviously, textile production was not completely absent in the south, like in Avesnes, but the centres were far and between.Maurice A. Arnould, "L'industrie drapière dans le comté de Hainaut au Moyen Âge," in *Villes et campagnes au moyen âge: mélanges Georges Despy*, ed. Jean-Marie Duvosquel and Alain Dierkens (Liège: Le Perron, 1991).

[471] Sivéry, *Structures agraires*; Arnould, "L'industrie drapière."

[472] Piérard, *Les plus anciens comptes*, 517-23.

Based on a list of all households in Mons from 1283, called *le droit de bourgeoisie*, the data is limited to circa 65% of the population.[473] Nevertheless, another taxation list of 1365 suggests that the included wards are well representative for the wealth levels in the city at large (the average quote in the wards was only 1.7% higher than the total average) unless the social profile of the neighbourhoods had shifted dramatically over time. We have accordingly multiplied the average fortune taxed in 1279-81 with the number of inhabitants suggested by the list of 1283 to arrive at the total stock of wealth. The results are reported in Table 4.3. Unfortunately, partition tables are not available for the first half of the fourteenth century, which makes it impossible to interpolate wealth levels in other communities and limits our comparison to the capitals for this period. The data shows that the total wealth in Mons was but a fraction of the grand fortunes amassed in the commercial hubs of Northern and Southern Europe (less than 4% of the total stock in Bruges or Florence). Likewise, the average wealth per capita was not even half the levels observed for the other capitals nor did it rival the levels found in Flemish or Florentine cities with a similar demography. Citizens in Sluis or San Gimignano held on average assets worth around 3.141 kg. of silver whereas those in Mons only held the equivalent of 1.644 kg. of silver. In fact, this figure was much closer to the ones observed for the Flemish countryside (on average 1.587 kg. of silver). This does not imply that Hainaut was a backward or poor region. It just shows how advanced the economies of Flanders and Tuscany were compared to a more typical region of this period.

For the fifteenth and sixteenth century, several partition tables have been studied extensively by Maurice-Aurélien Arnould. In Hainaut, general levies were introduced relatively late. Only from 1365 on, the Counts were able to impose taxation on the entire polity. Contrary to Flanders, theoretical surveys that could serve as a benchmark for partitioning were never conducted. Instead, representatives of different communities and groups renegotiated the distribution of the burden frequently, which resulted in a variable methodology of taxation. In the first general levy of 1365 for example, all three members of the *Staten*, i.e. the clergy, citizens, and nobility, individually decided how and how much they would contribute. As rural communities were not represented, their share was calculated by the *Staten* based on demography. A general framework for taxation would be established in the following decades, although the practicalities still varied from one year to another. From 1385 on, the nobility was taxed alongside the countryside according to a hearth census.

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[473] De Keyzer, "Un instantané de la population," 159.

TABLE 4.3 TOTAL TAXABLE WEALTH (A) AND PER CAPITA WEALTH (B) IN THE COUNTY OF HAINAUT, 1279-1569 (IN KG. SILVER)

	1279-81		1444		1532-69	
	A	B	A	B	A	B
A) Cities (in order of pop)						
Valenciennes			(37,846)[1]	2.803	76,351	4.990
Mons	(8,492)[2]	1.644	18,923	2.103	66,088	5.006
Ath			5,334		20,377	4.166
Hal			3,316		8,261	2.206
Enghien			4,397	2.592	19,826	(6.554)[3]
Binche			5,623		7,160	2.630
Soignies			1,961	1.650	8,812	(3.750)[3]
Quesnoy			1,982		4,406	(2.063)[3]
Avesnes			3,893	(1.974)[4]	2,203	(1.208)[3]
Maubeuge			7,930		7,160	(4.012)[3]
Lessines			n/a		5,783	(3.610)[3]
Condé			1,874		4,957	(3.120)[3]
Braine-le-Comte			807		4,681	(3.270)[3]
Chièvres			1,586	1.982	3,855	2.856
Beaumont			634		4,130	3.168
Chimay			1,225	0.778	815	0.888
Roeulx			937		1,928	(2.325)[3]
Leuze			n/a		3,580	4.323
Bouchain			620	0.835	1,652	2.185
Saint Ghislain			1,153		1,928	(3.490)[3]
Bavay			1,225		1,542	(4.270)[3]
Landrecies			1,096	(2.033)[4]	1,652	(3.312)[3]
Total cities			102,365	(1.990)[5]	257,146	4.082
B) Countryside			112,174	0.822	273,574	1.596
C) County of Hainaut			214,538	(1.142)[5]	530,720	2.264

Notes:

1. Valenciennes was not included in partition tables because it paid its quote directly to the counts. For 1444, this information was not available, so its share was based on the city's contribution of 1428.
2. Extrapolation based on the average wealth per households in 5 wards (ca. 66% of total population).
3. Population based on the city's share in the total number of urban chimneys in 1553.
4. The number of households in Avesnes and Landrecies were surveyed together in 1406. Population figures based on the share of each community in 1553.
5. Based on the demographic evolution in cities with data (ca. 69% of total urban population).

Sources:

See Appendix 4.2; Arnould, Maurice-Aurélien. *Les Dénombrements De Foyers Dans Le Comté De Hainaut (Xive-Xvie Siècles).* Bruxelles: Palais des Académies, 1956; Platelle, Henri, ed. *Histoire De Valenciennes*. Lille: Presses

Universitaire de Lille, 1982; Zoete, A. *De Beden in Het Graafschap Vlaanderen Onder De Hertogen Jan Zonder Vrees En Filips De Goede (1405-1467)*. Brussel: Paleis der Academiën, 1994; De Keyzer, Walter. "Un Instantané De La Population Montoise À La Fin Du Xiiie Siècle: Les Rôles De Perception De 1296." *Annales du Cercle archéologique de Mons* 77 (1996): 145-73; Ibid. " L'évolution De La Ville, De 1200 À 1365." In *Images D'une Ville: Mons, De 1200 À 1815*, edited by Marinette Bruwier, Walter De Keyzer, Christiane Piérard and Bruno Van Mol. Images D'une Ville. Brussels: Archives générales du royaume, 1997; Stabel, P., and F. Vermeylen. *Het Fiscale Vermogen in Brabant, Vlaanderen En in De Heerlijkheid Mechelen: De Honderste Penning Van De Hertog Van Alva (1569-1572)*. Brussel: Palais des Académies, 1997; Dambruyne, Johan. *Mensen En Centen: Het 16de-Eeuwse Gent in Demografisch En Economisch Perspectief*. Gent: Maatschappij voor geschiedenis en oudheidkunde, 2001; Junot, Yves. *Les Bourgeois De Valenciennes: Anatomie D'une Élite Dans La Ville (1500-1630)*. Villeneuve d'Ascq: Pesses universitaires du Septentrion, 2009.

Sometimes a fixed fee for every household was established, while in other times different fees were applied across the County.[474] Even in the last-mentioned case, variation was limited to a handful of quotes and each one applied to a group of large jurisdictions. Accordingly, the partition tables do not allow us to determine the geographic distribution of wealth within the countryside.

Together, the nobility and the rural communities were expected to contribute one third of the general levy. Cities and clergy also had to pay one third each, yet shares were often adjusted downwards after claims of impoverishment or privileges, which probably resulted in a more realistic distribution of the tax burdens.[475] To keep the data comparable to those of the other two regions, the share of the clergy was excluded from the reconstruction of wealth. Cities further divided their share among themselves in accordance with their financial capacities. Albeit detailed information is lacking, the example of the thirteenth-century surveys of movable and immovable properties in Mons (see Chapter 3.1 To tax or not to tax?), suggests that this was based on a wide range of assets, similar to the fiscal traditions in Flemish and Florentine cities. If this was indeed the case, then the partition tables for cities are useable to reconstruct the geographic distribution of wealth. However, tracing its evolution is not straightforward given that the number of cities varied greatly from one list to another because of the already mentioned temporarily exemptions, like Binche in 1365, and also because membership of the *Staten* was very fluid for small towns depending on the fiscal motives of the larger cities and central government as well as their changing fiscal capabilities. For instance, the town of Leuze was mentioned in the first general levy but then disappears from the partition tables until 1501. By this time, the list of contributing cities

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[474] Compare for example the partitioning in 1444 with that of 1458: in the first one, three different quotes were used, whereas all households were quoted 4s. 6d. tor. in the last one. Arnould, *Les dénombrements de foyers*, 434-47.

[475] See especially the case of the clergy in the sixteenth century. Ibid., 99.

encompassed 22 communities versus 16 in 1365.[476] To keep this issue limited and the overview as comprehensive as possible, we have selected the most extensive lists of cities around both our sample periods, namely the partitions of 1444 and 1532.

As we have already mentioned before (see 4.3 One for all), the *honderdste penning* of 1569 provides us with a general wealth figure for the County of Hainaut, which allows us to transform the relative contributions of 1532 into absolute wealth figures. For 1444, no comparable data or taxation lists for cities are available. Instead, we calculated the share of Hainaut in the general levies of Philip the Good between 1433 and 1455 vis-à-vis the share of Flanders to convert our earlier wealth estimate for the latter region in 1408. Based on this information, the total wealth of the former was 16.2% of that of Flanders and implies a total wealth of 214,538 kg. silver.[477] This methodology is far from perfect as not all regions contributed in every levy. If we already had to be careful with the data for Flanders and Florence, the figures for fifteenth-century Hainaut need to be taken with a grain of salt. Nevertheless, a confrontation with the regional distribution of the more robust *honderdste penning* shows that the aggregation of contributions over two decades returns plausible results: in 1569, Hainaut contributed 26.7% of the sum paid by Flanders, which is in line with its economic evolution (cfr. below).

Table 4.3 shows that the County of Hainaut was still lagging behind the forerunners in the fifteenth century. The average wealth was still less than half the levels found in the County of Flanders or the Republic of Florence (1.142 kg. silver per inhabitant versus 2.712 and 2.088 kg. silver) even though a positive evolution had taken place since the early fourteenth century (levels had increased by 27.9% in Mons). From the end of the fourteenth century, the struggling textile industry in the towns and countryside of northern Hainaut as well as in Valenciennes, Mons, and Maubeuge in the centre found its second breath in the production of lighter fabrics, in close tandem with the evolution of the industry in Inland Flanders. By 1444, markets for linen were still developing, but already proved to be profitable. Indeed, we observe some very respectable levels of wealth per capita in these towns. For example, Enghien with an average of 2.592 kg. silver per inhabitant would rank the fifth richest town in the Republic of Florence at that time, just behind Pistoia, which was twice its size. Valenciennes with 2.803 kg. silver, by far the richest city in Hainaut, would even rank fourth,

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[476] This figure does not include the large city of Valenciennes, which was never part of the *Staten*. It negotiated and paid its share directly to the counts of Hainaut. Ibid., 208-10.

[477] The year 1433 is chosen as a starting point because it was the first general levy in which the County of Hainaut contributed after becoming part of the Burundian Low Countries in 1432. The endpoint 1455 is simply chosen because it ensures that 1444 falls in the middle of the time interval. Zoete, *De beden in het graafschap*, table 15.

after Pisa. The wealth of this city was not only generated by its reinvigorated textile industry, but also thanks to its strategic position in the grain trade between northern France and Flanders. In stark contrast, towns in the most southern part of the County remained focused on their function as a market for agricultural produce. After the Black Death, the rural economy of southern Hainaut was struggling due to increased competition on the international grain market and falling profit margins due to a decrease in demand.[478] As the opportunities for growing cash crops or proto-industrial activities were limited compared to the north, communities in this part of the County gradually transitioned towards a pastoral economy, much like what happened in Coastal Flanders. The increased purchasing power of labourers combined with the fact that meat and dairy spoil much faster than grain and thus have to be produced rather close-by, opened up new markets for farmers in Hainaut who could provision the densely-populated Southern Low Countries. By 1444, the transition towards husbandry was far from complete and only few towns, like Landrecies, seem to have profited from the increased interregional trade in cheese and meat.[479] Most towns remained however focused on their immediate hinterland. Subsequently, the average wealth of their citizens was hardly different from those of rural households (e.g. Chimay where citizens owned on average 0.778 kg. of silver). The data for this last group is rather comparable to the levels found for the Florentine countryside in the early fourteenth century (0.822 kg. silver per rural inhabitant in Hainaut versus 0.937 kg. silver), but almost double compared to the fifteenth-century *contado* (0.523 kg. of silver). Again, this demonstrates how extractive the Florentine system became.

Over the course of the following century, the above developments took off and pushed the economy of Hainaut towards a new level. The textile industry in northern Hainaut had expanded rapidly. In 1458, Ath had acquired the staple right of all linen cloths produced in the County, which secured its place as the third richest community in Hainaut. Enghien, to give another example, became an international centre for tapestry weaving, much like nearby Oudenaarde in Flanders or Brussels in Brabant. Accordingly, the total wealth in this region more than tripled (from 18,339 to 67,740 kg. silver, excluding Lessines and Leuze for which we do not have all data) and the average wealth of citizens soared to 3.845 kg. silver. At the same time, towns in the southern part also witnessed a growth in total and average wealth, albeit more limited, thanks to the advanced transition towards animal husbandry (the urban stock of wealth increased from 11,325 to 19,815 kg. of silver). In general, the County of Hainaut seem to have emerged as an advanced economy by the middle of the sixteenth

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[478] Sivéry, "Les profits de l'éleveur et du cultivateur dans le Hainaut a la fin du Moyen Age."; *Structures agraires*, 81-83.
[479] Soens and Thoen, "Vegetarians or carnivores? Standards of living and diet in late medieval Flanders," 507-08.

century. In terms of average wealth per inhabitant, it had gained some serious ground on Flanders (with 2.264 kg. silver per capita, the level constituted 86% of that of the latter) and was probably very similar to the Republic of Florence, which seem to have lost its primacy by this time (based on the declining trend in communities with data). But even at this stage, the difference between cities was more outspoken in Tuscany than in the Southern Low Countries. Just as Flanders, Hainaut was characterised by a multitude of competing, small towns and a lack of a single, dominating central city. The average wealth in the poorest community (Chimay) was only about seven times lower than in the richest (Enghien) compared to the factor 25 we found for fifteenth-century Florence.

4.5 Conclusions

In general, our reconstruction of wealth seems to confirm the idea of a Golden Age for labour albeit the extent of the gains and the geographical scope appear more limited. First, despite the decline in the total stock, levels per capita seemed to have increased by about 40% in both the Republic of Florence and the County of Flanders between the early fourteenth and the beginning of the fifteenth century. Data for the evolution in the County of Hainaut was limited to the capital of Mons, but here too a growth of 27.9% in the average fortune could be observed. Although the gains are significant, they are nowhere near the extreme three- to sixfold increases found in the real wage series (see Chapter One). In this perspective, the evolution of wealth seems to match the demographic trends of the fourteenth and fifteenth century much better than real wages do. From the sixteenth century on, a new phase in the economic history of the Southern Low Countries and the Republic of Florence begun. In Hainaut, industrial and commercial activities expanded rapidly, which resulted in a doubling of the average wealth per capita. By contrast, the dynamism of the late medieval frontrunners seemed to have slowed down as the average wealth and the gap with other regions started to decline. This is not to say that the economies of Florence and Flanders collapsed. In fact, the reconversion of their textile industries towards lighter fabrics, namely the production of *rascia* cloth in the former and linen in the latter, was highly successful by the sixteenth century and the two polities remained important players on the international markets. Together with a demographic recovery, this pushed the stock of wealth in the County of Flanders beyond the already high levels of the early fourteenth century, marking the beginning of a new phase of economic expansion.

Second, the increase in living standards was not as universal as wage series seem to imply. It appears that the Southern Low Countries was much better equipped to adapt to the changing economic circumstances after the Black Death. Concentrations of wealth could be found across the counties of Hainaut and Flanders, though some limited subregional

variation was visible, thereby creating an important market for domestic demand. In contrast, elites in the Republic of Florence tried to compensate the losses of the mortality, banking, and textile crisis by curtailing competition within its sphere of influence. Thanks to its military and fiscal power, the city of Florence proved extremely successful in this endeavour: not only did it enlarge its territory fivefold, it was also able to amass a wealth unseen in any other community we have analysed. The average assets owned by Florentine citizens must have been among the highest levels for late medieval Europe. However, outside the capital, fortunes were far more modest or even below the European average judging from the Hainaut data, especially in the *contado* where households paid a disproportionately high price for the ambitions of the Republic. The expansion of the *mezzadria* system combined with an unjust fiscal policy continuously eroded the wealth of rural households in favour of the urban elites. The geographic distribution of wealth therefore reveals the importance of power structures in shaping the economy in general and living standards in specific. It shows that both in Tuscany and the Southern Low Countries the financial preconditions for a material Renaissance were present, but were much more concentrated in the former, in contrast to the earlier claims by Richard Goldthwaite. To what extent wealth was also concentrated within communities is the central theme of the next chapter.

Splendour or wealth?

Economic inequality during the Golden Age for labour

One final piece of the puzzle remains to be solved. Now that we have established when, where and to what extent there was room for a Golden Age for labour, we still need to determine who profited the most. While some of elements of the Lorenz or depression thesis seem no longer valid for Tuscany and the Southern Low Countries, the role of the elites remains unclear. On the one hand, differences between the regional distribution of wealth revealed how the strong position of the urban rulers in the former region resulted in a concentration of resources in the capital whereas gains were spread more evenly in the latter. Subsequently, one can assume that the potential for inequality was much higher in the Republic of Florence. On the other hand, it is also possible that local elites simply moved towards the capital to be closer to the seat of power once their territory was conquered by the Republic. Given that the top of society generally owns a substantial part of the total assets, their migration might explain why the average wealth per capita declined outside of Florence even though the bulk of the population were possibly better off. In the County of Flanders, the reconversion of the economy from a textile industry focused on the mass production of cheap textiles for the international markets towards a more diversified economy aimed at durable and fashionable consumer goods for both international and regional markets might be indicative for the proliferation of a strong middling class, but it may also obscure the deterioration of the lower classes caused by the significant loss of opportunities for unskilled labourers in the textile sector. Perhaps Raymond van Uytven summarised this thought best when he wrote that "for many towns in the Low Countries the 'golden fleece' of duke Philip the Good was but a poor reproduction of the woollen fleeces former generations had been living on. [...] The Burgundian splendour did not mean wealth for all."[480] It is therefore quintessential to confront the previously established evolution of wealth with the evolution of economic inequality during the Late Middle Ages.

Inequality as a research topic in history emerged between the 1960's and the 1970's, mainly as a corollary of the increased interest in the economic conditions of the common classes. Large research projects were set up to explore the potential of taxation records.[481] In the spirit

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[480] Van Uytven, "Splendour or wealth," 114.
[481] For a historiographical discussion on the topic, see: Sandro Carocci and Isabella Lazzarinii, eds., *Social Mobility in Medieval Italy* (Rome: Viella, 2018), part 1, frameworks.

of a *histoire totale*, the believe that one could uncover and explain all aspects of past societies, historians perceived the lists as the perfect starting point.[482] Armed with a cross-section of the population, they would employ additional sources to link every possible information, such as occupation, political career, offspring, etc., to each tax payer, thereby reconstructing entire communities from the ground up. At the same time, technological innovation, in particular computerised data collection, provided the necessary tools to undertake such a massive endeavour. For the Middle Ages, the already mentioned study by David Herlihy and Christiane Klapisch-Zuber of the *catasti* of 1427-30 is undoubtedly the most famous example of this historiographical trend.[483] To date, it remains one of the most extensive and detailed surveys. As we have seen, sources for the Southern Low Countries are more fragmented and rarely cover more than a few villages or a single city, yet this didn't dissuade historians from conducting similar studies. For example, Ingrid De Meyer analysed a tax list for half the city of late fourteenth-century Bruges, encompassing more than 3,000 contributors. Consulting no less than six different series of accounts, she was able to identify the occupation of one third of all taxpayers (see also Chapter 3.2 Occupational and the building industry).[484]

In spite of all its merit, interest in the topic started to wane everywhere from the 1980's on, when neoliberal policies (re)gained momentum after decades of Keynesian perspectives on the economy. In a free market, inequality was merely the logical expression of success. In the academic field of history, the initial optimism of the structuralist approach was replaced with a more sceptical view under influence of the cultural turn. Taxation records were no longer seen as objective reflections of social hierarchies, but rather as tools for those in power. Instead of reconstructing reality, the primary goal became to deconstruct the tax lists to uncover the social context with its own set of rules and customs in which they emerged.[485] On a more pragmatic level, largescale projects were ultimately abandoned because it simply didn't return the expected results. Record linking thousands of households to other available sources is incredibly labour intensive and often remains uncertain. For example, Ingrid De

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[482] See for example the introduction to W. P. Blockmans et al., *Studiën betreffende de sociale strukturen te Brugge, Kortrijk en Gent in de 14e en 15e eeuw*, vol. LIV, Standen en Landen (Heule: UGA, 1971). The authors informed the reader that the 'exhaustive analysis of archival sources' was aimed at reconstructing a 'total picture of society', or at least tried to (p.5).

[483] Herlihy and Klapisch-Zuber, *Les Toscans et leurs familles*.

[484] De Meyer, "De sociale strukturen te Brugge in de 14de eeuw."

[485] See especially the volumes edited by Richard Bonney: R. Bonney, *Economic Systems and State Finance* (Clarendon and the European Science Foundation, 1995); Bonney, *The rise of the fiscal state in Europe, c. 1200-1815*; W.M. Ormrod, M. Bonney, and R. Bonney, *Crises, Revolutions and Self-sustained Growth: Essays in European Fiscal History, 1130-1830* (Shaun Tyas, 1999).

Meyer could not find additional information for the majority of the households listed in the late fourteenth century tax records for Bruges despite her extensive consultation of the archives (cfr. supra). Even when she did find a link, homonyms seriously hampered the analysis.[486] Furthermore, the demanding time requirements and the varying nature of the available sources per case resulted in a patchwork of local or, at best, regional studies who were difficult to compare.[487] As we have seen multiple times by now, the very foundation of the research, the cross-section provided by taxation records, could differ drastically between locations and even within a single community over time: in premodern Europe the criteria for taxation and, by extension, for who was included in the lists were rarely fixed. Eventually, historians lost their hope of reconstructing an all-encompassing stratification of society.[488]

Since the financial crisis of 2008-2009, taxation records are once again high on the scholarly agenda. The sudden crash of the world economy pushed inequality levels to new heights, unobserved since the beginning of the Second World War and contrary to the most dominant predictions of economic theory at that time. Concurrently, public opinion became more sensitive to social polarisation as was evident from political movements, such as the Occupy protests being held all over the world. As a result, the demand for inequality research has skyrocketed both in academia and in the public sphere. Economic history, with its focus on long-term evolutions, has been a fruitful discipline in expanding our knowledge on the topic. For instance, Thomas Pikkety's book on the evolution of capital since the seventeenth century had a significant impact on the public debate and was later made into a documentary.[489] The spread of the coronavirus disease in 2019 and its impact on living standards and wealth has only corroborated the importance of historic research given that the Western World hadn't witnessed any severe pandemics since the Spanish flu one century earlier. Unsurprisingly, comparisons with the Black Death have proliferated in popular and academic press given that it is often regarded as the worst pandemic in human history.[490]

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[486] In a review, Leon van Buyten criticised De Meyer for the way she had handled homonyms and the lack of any critical reflection on the issue in the main text. L. van Buyten, "Privé-financiële structuren en methodologische problemen. Naar aanleiding van publicaties betreffende de Zuidelijke Nederlanden en het Luikse (veertiende tot achttiende eeuw)," *BMGN - Low Countries Historical Review* 89, no. 1 (1974): 93-94.

[487] Most of the criticism that Eric van Haute voiced against the structuralist approach of modern social stratifications is applicable a fortiori to the medieval period, including the fragmentation of the research field in the 1990's. Vanhaute, "Het debat dat er geen was."

[488] An important exception to this historiographical trend is the work of Jan Luiten Van Zanden and Lee Soltow. See especially J. L. Van Zanden, "Tracing the beginning of the Kuznets curve: western Europe during the early modern period," *The Economic History Review* 48, no. 4 (1995); Soltow and van Zanden, *Income and Wealth Inequality*.

[489] T. Piketty, *Capital in the Twenty-First Century* (Harvard University Press, 2014).

[490] See for example: Ali Shamekh, Ata Mahmoodpoor, and Sarvin Sanaie, "COVID-19: Is it the black death of the 21st century?," *Health promotion perspectives* 10, no. 3 (2020); Jos Vandervelden, "De geschiedenis lijkt zich te herhalen: in de

In all the recent efforts to reconstruct premodern inequality, especially for the late medieval period, Guido Alfani and his research team on the EINITE and SMITE projects have been the most productive in gathering new data and broadening our knowledge.[491] Because the Italian peninsula has been the primary subject of both projects, the dominance of the region in the current historiography is only logical. Moreover, the Italian archives have proven to be a rich source for medieval taxation records. As we have experienced already, the Republic of Florence has produced one of the longest series of tax registers covering a large political entity. Differences across time and space were only limited and well documented.[492] It allowed Alfani and Ammannati to standardise and compare tax records of 14 communities between the late thirteenth century and eighteenth century.[493] The general picture that emerges from studying these registers is that wealth inequality increased steadily during the late medieval and early modern period. There is one important exception however: in the century and half after the Black Death, distributions appear to be more egalitarian than before, which seems to confirm the idea of a Golden Age for the masses. More scattered evidence from the Holy Roman Empire, the Iberian Peninsula, and Southern France suggests that this evolution was universal in Europe.[494] While explanations for this trend are varied and mostly speculative, scholars currently point to two main factors. For the bottom of the distribution, the changes in the functional distribution of income due to mass mortality, pushing wages ever upwards and property prices reversely downward, allowed them to purchase (more) assets, such as houses. In contrast, the top of society witnessed a devaluation of their existing portfolio with lower land prices and declining interest rates. More importantly, the suddenness of the Black Death and the widespread custom of partible inheritance in medieval Europe caused elite wealth to be split up among the often numerous family members. When the rich became accustomed to the recurrence and nature of plague waves, new institutions, such as the *Fideicommissum,* were developed to prevent the division of the patrimony. This evolution

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middeleeuwen kwam ook de pest via Italië Europa binnen," (VRT Nieuws, 2020); Anna North, "What the History of Pandemics Can Teach Us About Resilience," (The New York Times, 2021); Alfani, "Epidemics, Inequality, and Povert."
[491] For a description of the projects see: https://cordis.europa.eu/project/id/283802   (EINITE) and https://cordis.europa.eu/project/id/725687 (SMITE) .
[492] Differences existed in tax rates for instance: communities located further from the capital were commonly taxed higher. Those variations have no effect on the relative measures for inequality, such as the Gini index, on a local level because the rate applied to entire communities. It does however matter when trying to aggregate the data on the regional level as Alfani and Ammanati attempted in table 3. For an overview of tax rates, see: S.K. Cohn, *Creating the Florentine State: Peasants and Rebellion, 1348–1434* (Cambridge University Press, 1999), 73.
[493] Alfani and Ammannati, "Long-term trends," 84-111.
[494] Guido Alfani, Victoria Gierok, and Felix Schaff, "Economic Inequality in Preindustrial Germany, ca. 1300 - 1850," in *Stone Center on socio-economic inequality working paper series* (2020); Antoni Furio et al., "Measuring economic inequality in Southern Europe: the Iberian Peninsula in the 14th-17th centuries," (2020); Guido Alfani, "Economic Inequality in Preindustrial Times: Europe and Beyond," *Journal of Economic Literature* 59, no. 1 (2021).

may explain why we don't observe a similar decline in inequality during the deadly 17th-century plague outbreaks.[495]

Remarkably, the extensive analysis of the Republic of Florence by Alfani and Ammannati did not include its capital, where the vast majority of wealth was held (67.3% of the total in 1427, see Chapter 4.1.A). The main reasons for this important omission are that citizens in the capital were since 1315 exempt from most of the taxations studied for the *contado* and that their rural assets were not assessed in the urban *decime* (see 4.1 Locating the Renaissance). There are however different types of registers preserved that inform us about the differences in total wealth between Florentine citizens, such as the *estimi* and *prestanze* (see also Chapter Three). Already in 1933, Bernardino Barbadoro analysed wealth distributions across space and occupation based on the *estimo* of 1352.[496] In more recent years, Anthony Molho explored the *catasto* of 1480 to better understand how wealth impacted marriage patterns, and Allesandro Stella demonstrated how the fiscal system of the forced loans created social injustices in the second half of the fourteenth century (see 5.1 The rich and powerful).[497] The most comprehensive studies of Florentine wealth have been published by John Padgett, who assessed the persistence of familial wealth amongst the Florentine elites and the wealth of certain businessmen based on eleven registers between 1325 and 1480.[498] He shows that social mobility increased after the Black Death, but already declined to its previous level by the beginning of the fifteenth century or one century earlier than what we would expect based on Alfani's findings for inequality. The observation suggests that the evolution in the capital may have been significantly different from those found in other communities. Given the fundamental shift in the geographical distribution of wealth, in which Florence came to dominate the entire territory, it is crucial to connect both historiographies and incorporate the capital in the regional series reconstructed by Guido Alfani.

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[495] Guido Alfani and Tommy E. Murphy, "Plague and Lethal Epidemics in the Pre-Industrial World," *The Journal of Economic History* 77, no. 1 (2017).

[496] Bernardino Barbadoro, "Finanza e demografia nei ruoli fiorentini d'imposta del 1352-55," in *Verhandlungen des Internationalen Congresses für Bevölkerungsforschung, Rome 1931*, ed. Corrado Gini (Rome: 1933).

[497] Anthony Molho, *Marriage alliance in late medieval Florence* (Cambridge: Harvard University Press, 1994). Alessandro Stella, "Fiscalità, topografia e società a Firenze nella seconda metà del Trecento," *Archivio Storico Italiano* 151, no. 4 (558) (1993).

[498] John F. Padgett, "Open Elite? Social Mobility, Marriage, and Family in Florence, 1282-1494," *Renaissance Quarterly* 63, no. 2 (2010); "Industrial Dynamics."

Historic research of inequality in the Southern Low Countries hasn't witnessed the same revival of interest in recent years, at least not for the medieval period.[499] In stark contrast to the studies of the Republic of Florence, research is still mainly focused on the local level, often limited to supportive data for social change or on the political and social processes behind fiscal systems.[500] Despite a rich historiography and a rich body of published sources (cfr. supra), very few scholars have attempted to retrace the general evolution of inequality in the larger region.[501] Four notable exceptions do exist. Wouter Ryckbosch studied housing taxes as a proxy for income inequality in the Southern Low Countries between the fourteenth and nineteenth century. However, his analysis only includes two observations before 1500 and they both cover only a part of a city. Moreover, the next datapoint for both communities is separated by two centuries, obscuring any trends before the early modern period.[502] Together with Thijs Lambrecht, Ryckbosch also researched inequality for the Flemish countryside, mainly the area around Bruges. The available tax records only start from the fifteenth century on and they are limited to a single year for the vast majority of communities. Ryckbosch and Lambrecht therefore decided to focus on explaining local differences rather than distilling a general trend for the regional level.[503] In his doctoral thesis, Kristof Dombrecht tried to mediate the lack of serial sources by analysing the inheritance of orphans as a proxy for wealth in two *Ambachten*, i.e. rural territories that consisted of a handful of villages. While the trend was clearly increasing in the sixteenth century, the picture for the second half of the fifteenth century was ambiguous: inequality seem to have declined in Dudzele Ambacht, whereas it remained relatively stable in Oostkerke Ambacht.[504] Lastly, Thijs Lambrecht investigated the

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[499] As is shown by the limited number of medieval cases in recent publications dedicated to inequality in the Low Countries: Bruno Blondé et al., *Inequality and the city in the low countries (1200-2020)* (Turnhout, Belgium: Brepols, 2020); "Inequality in the Low Countries," *The Low Countries Journal of Social and Economic History* 14, no. 2 (2017).

[500] See for example: Heidi Deneweth, Ward Leloup, and Mathijs Speecke, "Visualising Urban Change. Bruges (Belgium), 1300-1700," in *Mapiranje urbanih promjena. Mapping urban changes*, ed. Ana Plosnić Škarić (Zagreb: Institute of Art History, 2017); Lambrecht, "Si grant inégalité? Town, Countryside, and taxation in Flanders, c. 1350-c.1500."

[501] We should note that the evolution of one specific component of wealth and income, respectively land ownership and access to land, has been studied more extensively for the Flemish countryside. An overview can be found in Thoen and Soens, "The family or the farm: a Sophie's choice? The late medieval crisis in Flanders."

[502] Specifically: one sixth of the city of Bruges in 1382 and one fifth of the city of Ghent in 1492. Ryckbosch, "Economic inequality and growth ".

[503] Thijs Lambrecht and Wouter Ryckbosch, "Economic inequality in the rural Southern Low Countries during the fifteenth century: sources, data and reflections," in *Disuguaglianza economica nelle società preindustriali*, ed. Giampiero Nigro, Datini studies in economic history (Firenze: Firenze University Press, 2020).

[504] Partly published with Wouter Ryckbosch, see: Kristof Dombrecht, "Plattelandsgemeenschappen, lokale elites en ongelijkheid in het Vlaamse kustgebied (14de-16de Eeuw). Case-study: Dudzele Ambacht" (Universiteit Gent, 2014); Kristof Dombrecht and Wouter Ryckbosch, "Wealth Inequality in a Time of Transition: Coastal Flanders in the Sixteenth Century," *Tijdschrift voor Sociale en Economische Geschiedenis/ The Low Countries Journal of Social and Economic History* 14, no. 2 (2017): 74-77.

taxation records for the countryside of Hainaut. As we have seen, sources for this region are unfortunately scarce due to a fire in the state archives. Lambrecht could only rely on the registers of a single community to reconstruct the evolution of inequality between 1465 and 1517. Adding a third possible scenario to the ones already described for the countryside around Bruges, disparities seemed to have grown steadily in the village of Hoves, but it is hard to generalise the fortunes of circa 200 households (±0.6% of the total rural population) to the entirety of Hainaut.[505] In sum, the research on tax registers is still very much the fragmented field it was decades ago. We still lack a general understanding of how inequalities evolved in the medieval counties of Flanders and Hainaut, especially between the early fourteenth century and the middle of the fifteenth century.

This chapter combines a series of new and known datasets to retrace the evolution of wealth inequality before and after the Black Death. Given the central role of the rich in the Lorenz thesis and current academic research, the first section investigates the fortunes of the rich in capital cities by analysing the differences within the top of the distribution and their collective share in the total stock of wealth. In contrast to the current historiographical consensus, no universal trend could be observed across the three communities. To test the representativeness of these findings, section two broadens the scope and reconstructs inequality levels for the entire Republic of Florence and the County of Flanders. The earlier observed trends are confirmed and suggest that the social scope for a Golden Age for labour was fundamentally different between the two regions. The last paragraph pinpoints who profited most by linking the relative distributions of the previous section with the absolute wealth levels of Chapter Four. We also reintroduce the changing position of the building labourers to assess how (a)typical the evolution of their wealth and living standards was compared to less mobile groups. As a result, we will finally be able to define the Golden Age for labour for the masses of the population. Did they truly witness significant gains across the whole of Europe after the Black Death? Or, in the words of van Uytven, should we characterise the late medieval period as one of splendour rather than wealth?

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[505] Lambrecht, "Economic inequality." Population figures based on the hearth census of 1540. Arnould, *Les dénombrements de foyers*, 183 and 278.

5.1 The rich and powerful. Wealth and inequality among the elite of capital cities

Both in the past and today, wealth inequality generally conforms to a Pareto distribution, which means that a select group of people holds the vast majority of assets. In many cases, roughly 80% of the total stock is owned by the top 20% of the distribution (known as the Pareto principle).[506] As a result, economic inequality is highly sensitive to changes within this group. For example, in Belgium in 2017, the latest year for which we have data, the richest 1% of the population held nearly 291 billion USD whereas the bottom 40% only possessed assets worth 77.3 billion USD. Similarly, the wealth of the Italian elites (top 1%) reached 677 billion USD in 2016. The poorest 40% households had to make ends meet with 256 billion USD.[507] It is easy to imagine that in such societies losses at the lower half of the strata hardly impact the distribution of wealth unless they occur on a massive scale. Accordingly, academic research has focused increasingly on the rich in the last couple of years to retrace the evolution of economic inequality. Most commonly, scholars of contemporary and modern economics have looked at the share of total wealth owned by the top 10%, 5%, 1%, or even smaller percentages, up to 0.000001%, much like our earlier examples of Belgium and Italy.[508] The observed trends for the top shares largely conform to the trends of the overall distribution in the long term, depicting a U-shape evolution over the twentieth century.[509] Alternative to this relative approach, scholars have also studied the rich as an absolute category by fixing a threshold of income or wealth, the so-called affluence or richness-line, which households must pass to be classified as rich. The richness-line is independent from the actual distribution and set *a priori*, for instance as a certain multiple of the median wealth or as the stock of wealth in excess of providing everyone basic subsistence.[510] Studies on the number of economic elites confirm the evolution of rising inequality, but they also highlight important differences between countries. For instance, Norway houses more rich (wealth exceeding 30 million USD) and super rich (> 100 million USD) relative to its population

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[506] For a general introduction to inequality and Pareto distributions, see: Charles I. Jones, "Pareto and Piketty: The Macroeconomics of Top Income and Wealth Inequality," *Journal of Economic Perspectives* 29, no. 1 (2015).

[507] All current prices. Data from: OECD, "Wealth Distribution Database," (2021).

[508] See for example, Emmanuel Saez and Gabriel Zucman, "The Rise of Income and Wealth Inequality in America: Evidence from Distributional Macroeconomic Accounts," *Journal of Economic Perspectives* 34, no. 4 (2020): 10.

[509] Anthony B. Atkinson, Thomas Piketty, and Emmanuel Saez, "Top Incomes in the Long Run of History," *Journal of Economic Literature* 49, no. 1 (2011); Jesper Roine and Daniel Waldenström, "Long-Run Trends in the Distribution of Income and Wealth," in *Handbook of Income Distribution*, ed. Anthony B. Atkinson and F. Bourguignon (Amsterdam: Elsevier, 2015); Pamela Katic and Andrew Leigh, "Top Wealth Shares in Australia 1915–2012," *Review of Income and Wealth* 62, no. 2 (2016); Moritz Kuhn, Moritz Schularick, and Ulrike I. Steins, "Income and Wealth Inequality in America, 1949–2016," *Journal of Political Economy* 128, no. 9 (2020).

[510] Marcelo Medeiros, "The Rich and the Poor: The Construction of an Affluence Line from the Poverty Line," *Social Indicators Research* 78, no. 1 (2006); Andreas Peichl, Thilo Schaefer, and Christoph Scheicher, "Measuring richness and poverty: a micro data application to Europe and Germany," *Review of Income and Wealth* 56, no. 3 (2010).

compared to the United States even though its wealth is less concentrated. Apparently, the differences at the top are less outspoken in the former country.[511] Subsequently, inequality among the economic elite themselves has attracted scholarly attention. For example, comparing the shares owned by or the average wealth of different subgroups of the rich helped to determine which variables are driving trends because their wealth portfolios vary significantly. The lower on the social ladder, the more dependent households become on labour income and the more risk averse they are, causing them to invest in less profitable yet secure assets.[512] This holds true at the top of the distribution where we still find wage earners, such as CEO's, politicians, and sportsmen. In this sense, the top can function as a *pars pro toto* though it also portrays its own dynamics. For instance, the growing wage gap between managers and workers has contributed to increasing general economic inequality, both in terms of wealth and income, whereas it helped to bridge some differences among the rich.[513] Nevertheless, the importance of the elite in shaping wealth distributions cannot be underestimated.

Most of the relatively few studies on medieval inequality have followed the above examples for contemporary and modern societies. In one article, Guido Alfani applied the richness-line, set as ten times the median wealth, to the data of the EINITE project to retrace the prevalence of the rich throughout the premodern period in Italy and the Low Countries. In line with the trends described in the introduction, the number of rich fell dramatically after the Black Death but recovered during the fifteenth century where it remained relatively stable at around 5% of the population. Depending on the region, the level increased significantly from the sixteenth or the eighteenth century onwards.[514] More commonly however, the analysis is limited to the share owned by the top 10%, 5%, or 1%. The data is derived from the same cross-sections that are used to estimate general inequality and mostly serve to highlight the already observed trends in a different perspective. Rarely, inequality within the economic elite is explored. Aside from reaffirming the consensus that the top shapes the distribution to a large degree, very few words are spent on this group.[515] Even in the already mentioned article of Alfani, entirely focused on the rich, inequalities among them are left unexplored.

[511] K. O. Moene, "The Social Upper Class under Social Democracy," *Nordic Economic Policy Review* 2016, no. 2 (2016).

[512] Piketty, *Capital in the Twenty-First Century*; Shang-Jin Wei, Weixing Wu, and Linwan Zhang, "Portfolio choices, Asset returns and wealth inequality: evidence from China," *Emerging Markets Review* 38 (2019); Joachim Hubmer, Per Krusell, and Anthony A. Smith. Jr., "Sources of US Wealth Inequality: Past, Present, and Future," *NBER Macroeconomics Annual* 35 (2021).

[513] Lawrence Mishel and Natalie Sabadish, "CEO pay and the top 1%," *Economic Policy Institute Issue Brief* 331 (2012).

[514] Alfani, "The rich in historical perspective."; Alfani and Di Tullio, *The Lion's Share*, 72-90.

[515] See for example: Ryckbosch, "Economic inequality and growth "; Lambrecht and Ryckbosch, "Economic inequality in the rural Southern Low Countries."; Alfani and Ammannati, "Long-term trends."

Although his figures reveal significant differences in the trend for the top 5% and 10% of the fiscal population, they are never confronted. For example, in the Sabaudian cities, the share of the former plummeted by 7.6% of the total wealth after the Black Death whereas the former remained relatively stable (increase by 0.4% of total wealth).[516] This stands in stark contrast to the older tradition of elite biographies, defined foremost by status, of individuals, families, or social groups, such as merchants, bankers, or noblemen. In this historiography, socio-economic indicators, including wealth, only played the second violin and systematic comparisons between regions or communities were rarely conducted.[517] In a similar vein, the structuralist histories of the second half of the twentieth century (see introduction) described the top of society in great detail given that record linking predominantly returned information for this group. However, in their effort to uncover the structure of society, scholars mainly looked at common characteristics, like political or occupational activities, rather than differences between them.[518] In sum, we remain ill-informed about inequality at the very top even though this part of distribution arguably offers the best proxy for general inequality either as a proxy or as the main determinant of its shape.

Aside from the above substantive arguments, there is also a very practical consideration to focus first and solely on the top of society. One of the main advantages is that we can get a relatively good grasp of inequality through a small set of observations. This aspect is extremely useful for historic research where we are often faced with incomplete and sparse data. Direct and proportional taxation of entire communities only occurred on rare occasions in the Middle Ages, such as the *catasto* of 1427. Instead, officials in both the Republic of Florence and the County of Flanders relied foremost on indirect taxation of consumption and trade to secure a steady public revenue. When this proved inadequate in the face of large building projects or military campaigns, they more often turned to (forced) loans for several reasons: communities did not need approvement from the central government to issue them, the organisation was much faster and less complex, and the administrative cost was lower.[519] For the contributing elites, loans were preferable over taxes because there was at least the

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[516] Alfani, "The rich in historical perspective," 340-45.

[517] This was especially the case for the upcoming bourgeoisie class. See for Flanders for example: F. Blockmans, *Het gentsche stadspatriciaat tot omstreeks 1302*, Werken uitgegeven door de Faculteit van de Letteren en Wijsbegeerte (Antwerpen: De Sikkel, 1938). For Florence, see especially the works of the Bolognese Dal Pane school, such as Giorgio Porisini, *La proprietà terriera nel comune di Ravenna dalla metà del secolo XVI ai giorni nostri* (Milano: Giuffré, 1963).

[518] For example A. Tagliaferri, *L'economia veronese secondo gli estimi dal 1409 al 1635* (Giuffrè, 1966); Pauwelyn, "De gegoede burgerij van Kortrijk in de 15e eeuw (1433-1496)."

[519] Maria Ginatempo, *Prima del debito finanziamento della spesa pubblica e gestione del deficit nelle grandi città toscane 1200-1350 ca*, Biblioteca storica toscana (Firenze: L.S. Olschki, 2000); Munro, "The Usury Doctrine and Urban Public Finances in Late-Medieval Flanders: Annuities, Excise Taxes, and Income Transfers from the Poor to the Rich."

promise of reimbursement. As such, they became owners of the public debt, which was gradually paid off through the regular revenue from indirect taxation. Given that lower classes paid a proportionally higher share of their income on consumption, this meant that the gross of the bill was eventually passed on to them. Indeed, the fiscal regime is often regarded as one of the main drivers of premodern inequality.[520] While this system would really come to fruition in the early modern era with the formation of the fiscal state, its roots must be traced back to these communal projects. For instance, Alessandro Stella described how requesting loans from the richest citizens was a common policy for the city of Florence whenever they needed new funds in the first half of the fourteenth century. With the introduction of the *Monte Comune* in 1343, all these loans became consolidated into a bond market. Forced loans subsequently became more frequent and were imposed on all citizens. However, households that were unable or unwillingly to contribute to these *prestanze* had the option to let somebody else pay their share and collect the interest or pay only part of their quote at the cost of forfeiting their reimbursement. In 1378, one in ten households chose the latter, while almost two thirds (61.6% of total) preferred the former. With a promised annual interest rate of 10%, the richest citizens happily took on the shares of their townsmen.[521] More than half the quotes was fulfilled by a mere thirty investors (56.9% of contributions and 31.8% of the revenue). The banker Vieri di Cambio dei Medici paid for no less than 906 households. After ten years, he had doubled his investment thanks to the different consumption taxes, called *gabelles*, imposed by the city, including those levied among the very same households who had sold him their share.[522] Uncoincidentally, several speculators became officials of the *Monte* before such a conflict of interest was banned by new rules in the early fifteenth century.[523] Despite such measures, the strong relation between political power and economic fortune further increased under Medici rule.[524]

Surprisingly, (forced) loans and other fiscal documents with limited demographic coverage have remained largely unexplored in the current revival of interest in inequality even though

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[520] Alfani and Di Tullio, *The Lion's Share*.

[521] The normal rate of the *monte* was 5% though under certain circumstances, such as in 1378, this rate was doubled or even tripled.

[522] Stella, "Fiscalità, topografia e società a Firenze nella seconda metà del Trecento," 834-43. On the evolution of the different types of loans and the *monti* as financial institutions and their impact on the wealth of citizens, see also: M. Veseth, *Mountains of Debt: Crisis and Change in Renaissance Florence, Victorian Britain, and Postwar America* (Oxford University Press, 1990), 46-74.

[523] Molho, *Florentine Public Finances*, 60-152.

[524] Marianna Belloc et al., "Wealth Accumulation and Institutional Capture: the Rise of the Medici and the Fall of the Florentine Republic," *CEPR Discussion Paper*, no. 17456 (2022).

such sources have received some attention in earlier historiographies of taxation.[525] Perhaps this omission can be attributed to the fact that today most economists and historians tend to rely on Gini coefficients to measure inequality. It expresses how far the distribution deviates from perfect equality by plotting the cumulative share of people against their cumulative share of wealth. The result can range from 0 (everybody owns the same share) to 1 (one person own everything). These coefficients are a powerful statistical tool to assess inequality across time and space because they are independent from varying population sizes and tax rates, allowing us to retrace long-term trends up to the present. However, for comparability, they need to encompass the entire society or at least, all the solvable households. One important exception to the neglect of fiscal sources with partial coverage relates to pre-industrial England. For this region, Guido Alfani and Hector García Montero reconstructed wealth distributions based on pre-1334 lay subsidies and the 1524-25 Tudor subsidies. Both kinds of levies were proportional taxes at the household level with a minimum wealth threshold to be included. Consequently, they only pertain to a varying share of the population, ranging from 11.2% to 67.2% of the total. To make comparisons across the registers possible, Alfani and García Montero employed the methodology developed by Hong et al. to model the excluded part of the distribution and arrive at an estimation of general wealth inequality through Gini coefficients.[526] While this specific approach and the broader desire to measure entire distributions have much merit, they don't render a focus on the elites obsolete for the study of historic inequality. In what follows, we explore two different categories of measures for the rich in capital cities. One category relies solely on the data included in the fiscal sources and looks at the internal distribution, whereas another one tries to estimate the economic importance of elites in the community and region as a whole. The capital cities under study are Florence, Bruges, and Mons. The idea is that wealth is mostly concentrated and, by extension, most unevenly distributed in the largest and most influential settlements of a polity.[527] Capital cities may therefore function as a proxy for regional trends albeit more outspoken.

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[525] See for example W. P. Blockmans, "Nieuwe gegevens over de gegoede burgerij van Brugge in de 13e en vooral 14e eeuw," in *Studiën betreffende de sociale strukturen te Brugge, Kortrijk en Gent in de 14e en 15e eeuw*, ed. W. P. Blockmans, et al., Standen en Landen (Heule: UGA, 1971); Marc Boone, "De Gentse verplichte lening van 1492-1493," *Bulletin de la Commission royale d'Histoire* (1981); Noël Geirnaert and Leontien De Leeuw-Geirnaert, "Een fragment van een onbekende zettingslijst voor een verplichte lening te Brugge uit 1296," ibid. (1989).

[526] Long Hong et al., "Giniinc: A Stata Package for Measuring Inequality from Incomplete Income and Survival Data," *The Stata Journal* 18, no. 3 (2018); Guido Alfani and Hector García Montero, "Wealth inequality in pre-industrial England: A long-term view (late thirteenth to sixteenth centuries)," *The Economic History Review* forthcoming. See the online appendix for demographic coverages.

[527] The concentration of wealth in capital cities is confirmed by our reconstructions of absolute wealth in Chapter Four. Based on Table 4.3, Valenciennes might be a better choice for the County of Hainaut but the source materials are better

For our first category of measures, we analyse the differences between the top 0.1% and 1% in regard to the share owned and the average wealth. By looking at the very top of the distribution, we can use all available fiscal sources for the capital cities, whatever their coverage. This is especially valuable for Bruges, for which we have but two socially comprehensive wealth taxes for the entire Middle Ages and never for the entire city. In contrast, there are at least six registers pertaining to the top 2% à 5% of the population (see Table 5.1) and more than half of them predate the Black Death, which allows us to retrace the impact of mortality crises on inequality in this region for the first time. The samples are too limited to model the entire distribution. For instance, the methodology of Hong et al. returns such a wide confidence interval that the results become meaningless.[528] Moreover, the number and importance of the assumptions needed to be made are more limited when focusing on differences among the top. In the current literature, the debate on which distribution is best suited to model the left-tail of wealth and income data is very much ongoing. Assuming a log-normal distribution, like in the case of pre-industrial England, is but one of several options.[529] Depending on the cut-off point, one distribution may fit the data better than the other, making the exercise even more complex when confronted with sources with varying coverage.[530] In contrast, for our present objectives, we only need to make a single, straightforward assumption about the population size of the capitals.

Table 5.1 lists all sources we employed in this chapter, their demographic and geographical coverage, as well as the type of levy. It shows that the included share of the population varied significantly from one register to another. To make comparisons possible, we thus need to determine how many households we need to select from the records to be representative for the richest 0.1% and 1%. While medieval population figures are often uncertain, the result isn't very sensitive to this kind of estimation errors as differences in the ratio between the two

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for Mons. Moreover, the evolution of wealth in the latter city better reflects the trends of the majority of towns. The idea that inequality increases with the type of settlement has been observed for premodern societies. Alfani and Ammannati, "Long-term trends," 1095-99.

[528] E.g. the non-parametric Gini numeric boundaries for the tax of 1306 are 0.183 and 0.947. As the Gini coefficient is limited to values between 0 and 1, this interval covers 76.4% of all possibilities.

[529] William J. Reed, "The Pareto law of incomes—an explanation and an extension," *Physica A: Statistical Mechanics and its Applications* 319 (2003): 469-71; Gholamreza Hajargasht and William E. Griffiths, "Pareto–lognormal distributions: Inequality, poverty, and estimation from grouped income data," *Economic Modelling* 33 (2013); Ignacio González García and Alfonso Mateos Caballero, "Models of Wealth and Inequality Using Fiscal Microdata: Distribution in Spain from 2015 to 2020," *Mathematics* 9, no. 4 (2021).

[530] Giorgio Fazio and Marco Modica, "Pareto or log-normal? Best fit and truncation in the distribution of all cities," *Journal of Regional Science* 55, no. 5 (2015).

TABLE 5.1 THE FISCAL SOURCES FOR MEASURING INEQUALITY AMONG THE ELITE

Year	Type	Geography Incl. wards	Demography (% of fiscal pop.) Total	Incl. wards	Source
A) County of Flanders: Bruges					
1296	Forced loan	All	5.4		(1)
1306	Tax	All	3.0		(1)
1311	Tax	All	1.7		(1)
1316	Forced loan	All	3.1		(1)
1339	Tax (avg. of weekly quotes >0)	All	2.7		(2)
1383	Tax	1/6	12.7	57.2	(3);(4)
1394	Tax (avg. of weekly quotes >0)	3/6	58.1	100	(5)
1411	Forced loan	All	5.0		(6)
1436	Forced loan	1/6	1.3	8.7	(7)
1440	Tax (avg. of weekly quotes >0)	1/6	17.5	100	(8)
1489	4 loans (avg. of loans >0)	All	14.9		(7)
B) County of Hainaut: Mons					
1279	Tax	5/*	67.7	100	(9);(10)
1296	Tax	All	100		(11)
1308	Forced loan	1/*	20.5	100	(9)
1365	Tax	All	100		(12)
C) Republic of Florence: Florence					
1325	Forced loan	1/6**	3,7	25.5	(13)
1352	Tax	All	100		(14)
1379	Tax (sample: ward of 1325)	All	100		(15)
1427	Tax	All	100		(16)
1458	Tax (sample: random 10%)	All	100		(17)
1480	Tax	All	100		(18)

Notes:* In the fourteenth century the city of Mons consisted of 13 wards, however it is unknown if this was already the case by 1308; ** In 1325, Florence was still divided in sixths (*sestieri*) before the introduction of the better known quarters (*quartieri*) in 1343.

Sources: (1) Wyffels, A., Jos De Smet, and A. Vandewalle. *De Rekeningen Van De Stad Brugge, 1280-1319*. (Brussels: Paleis der Academiën, 1965-97): 578-594, 658-675, 956-966, 1267-1272, 1695-1706: (2) Stadsrekening 1339-1340, 33, Stadsarchief Brugge, Bruges: 26R-36V; (3) Pointingboek Van De Glavye: Sint Jacobszestendeel, s.n., Stadsarchief Brugge, Bruges; (4) Mertens, Jacques. "Sociale Geografie Van De Sint-Jacobswijk Te Brugge (1382-83)." In *Studiën Betreffende De Sociale Strukturen Te Brugge, Kortrijk En Gent in De 14e En 15e Eeuw* (Heule: UGA, 1971); (5)De Meyer, Ingrid. "De Sociale Strukturen Te Brugge in De 14de Eeuw." In ibid.: table 5; (6) Stadsrekening 1410-1411, 32461, Stadsrekeningen van het graafschap Vlaanderen. Brugge: algemene rekeningen, Algemeen Rijksarchief Brussel, Brussels: 27R-28R; (7) Blockmans, W. P. "Nieuwe Gegevens over De Gegoede Burgerij Van Brugge in De 13e En Vooral 14e Eeuw." In *Studiën Betreffende De Sociale Strukturen*: tables 1 and 3; (8) Pointingboek Wekelijkse Pointing: St.-Jans-Zestendeel, s.n., Stadsarchief Brugge, Bruges; (9) Piérard, Christiane. *Les Plus Anciens Comptes De La Ville De Mons, 1279-1356* (Bruxelles: Palais des Académies, 1971): 517-543, 563-569; (10) Arnould, Maurice A. "Les Plus Ancien Rôles D'impots De La Ville De Mons (Hainaut), 1281-1299." In *Mélanges De Philologie Romane Offerts À M. Karl Michaëlsson Par Ses Amis Et Ses Élèves.* (Göteborg: Göteborgs universitet, 1952); (11) Droits De Meilleur Catel Sur Les Habitants De La Ville De Mons, 48, AEM.08.005, Archives de l'État à Mons, Mons ; (12) Heupgen, Paul. "Le Rôle De La Taille De Mons De 1365." *Annales du cercle archéologique de Mons* 55 (1937): 41-

95 ; (13) Prestanza 1325, 496, Manoscritti, Archivio di Stato di Firenze, Florence ; (14) Estimo 1352, 306, Estimi, Archivio di Stato di Firenze, Florence ; (15) Prestanza 1378 San Croce, 367, Prestanze, Archivio di Stato di Firenze, Florence ; (16) Herlihy, D., and C. Klapisch-Zuber, "Online Catasto of 1427," Brown University ; (17) Ibid., "Census and Property Survey for Florentine Domains and the City of Verona in Fifteenth Century Italy," University of Wisconsin: Data and program library service; (18) Molho, *Marriage Alliance in Late Medieval Florence*. (Cambridge: Harvard University Press, 1994): Appendix 3.

rich subgroups do not change significantly when a few extra households are included.[531] As long as the general evolution of demography is correct, the observed trends should be representative. In addition, some sources included in Table 5.1 only pertain to some wards of the city. In these cases, we have calculated the average share of the ward(s) in the total population for every fiscal register with complete coverage. The number of households in the top 0.1% and 1% was accordingly adjusted. Because elites tend to cluster in certain parts of the city, most commonly in the centre and along important trade axes, a selection of wards does not provide a random sample in all probability. Moreover, in some cases, such as for Mons, the sample size for the top 1% becomes very small (N<10). We have therefore always indicated when an observation was based on incomplete sources. Lastly, some taxations and loans were levied at different intervals over a longer period. Because households regularly moved from one ward to another or from one city to another, several entries are incomplete. To remedy this issue of migration, we have followed the methodology of Ingrid De Meyer for the taxation list of Bruges in 1394-96 and calculated the average contribution of every household for every instance their quote was recorded instead of the mere sum of all quotes.[532]

Obviously, any analysis of premodern fiscal sources comes with some important disclaimers. Aside from the general limitations and characteristics of medieval taxation outlined in Chapter Three (see 3.1 To tax or not to tax?), there are some specific considerations when looking at the top of the distribution. First, the top of the fiscal distribution is not equal to the top of the wealth distribution. Due to their privileged status, clergy and noblemen or some of their assets, such as feudal lands, were rarely included in taxation registers. In this sense, a significant share of the economic and political elites is (partly) omitted in our sources and may lead us to underestimate inequality. Unfortunately, there is no way to mediate this issue and we simply have to assume the distortion is consistent across time and space.

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[531] Taking the example of the tax of 1306 again: if our calculations for Bruges (see Appendix 4.3) underestimated the total population by 10% (a difference of 1250 households or circa 5,500 inhabitants), the ratio between the top 0.1% and 1% would amount to 28.3% versus the reported 27.3% (a relative increase of 3.7%). The inverted Pareto Lorenz β coefficient amounts to 1.49 versus the reported 1.52 (relative decrease of 2.0%).
[532] De Meyer, "De sociale strukturen te Brugge in de 14de eeuw," 9-10.

Similarly, the wealth of institutions, like churches and hospitals, is not recorded even though they often held considerable assets. Since we are mostly interested in living standards of households, this doesn't pose too much of a problem. Second, fiscal wealth does not necessarily reflect the true stock of wealth. Tax evasion is a common limitation when dealing with fiscal records, but it is especially relevant for the top of the distribution. The large overlap between political and economic power allowed the elite to rig the system, like in our example of the Florentine *prestanze*. As we have seen in Chapter Three, tax rates were often regressive, which meant that richer households had to contribute less than others relative to their net worth. Today as in the past, the top has been most successful in deflating the value of their assets through creative loopholes, such as third-party ownership.[533] Furthermore, the international character of their portfolio makes it incredibly difficult for local governments to make a proper assessment of their wealth. Present-day collectors are primarily hindered by offshore accounts in tax havens, but it is easy to imagine that medieval bankers and merchants likewise hid their assets in one of the many communities they were active. For instance, the fourth richest man in the *catasto* of 1427, Alessandro Borromei, held lucrative shares in Venetian, London, and Bruges companies.[534] In the latter city, Italian merchants were exempt from direct taxation. Again, there is very little we can do to remedy this problem and simply have to accept that our estimates are in all probability too low. As long as they are consistently underestimating inequality by the same degree, this does not invalidate our findings.

Figure 5.1 plots the evolution of inequality among the elite by dividing the total wealth owned by the top 0.1% by that of the top 1% (i.e. the wealth ratio). The higher the ratio climbs, the more wealth is concentrated within the rich. Figure 5.2 provides an alternative measure of inequality based on the inverted Pareto-Lorenz Beta (β) coefficients for the top 1%. Today, this measure is most commonly used when describing or determining the fatness of the right tail of income and wealth distributions.[535] More specifically, it informs us about the dispersion within the highest bracket by dividing the mean quote of the rich by the quote of the cut-off point (in our case P99). For example, a β coefficient of 2.00 means that households of the top 1% own on average twice as much wealth as the poorest member of said subgroup. Looking at the absolute levels, the city of Florence stands out as the most

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[533] Emmanuel Saez and Gabriel Zucman, "Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data," *The Quarterly Journal of Economics* 131, no. 2 (2016): 4.

[534] Philip Jacks and William Caferro, *The Spinelli of Florence: Fortunes of a Renaissance Merchant Family* (Pennsylvania: Pennsylvania State University Press, 2001), 39-42.

[535] See for example, Atkinson, Piketty, and Saez, "Top Incomes in the Long Run of History," 679-81; Hubmer, Krusell, and Jr., "Sources of US Wealth Inequality: Past, Present, and Future," 399. For a historic application: Soltow and van Zanden, *Income and Wealth Inequality*, table 3.7.

unequal with wealth ratios fluctuating between 25% and 40% and β coefficients between 1.71 and 2.74. Bruges and Mons seem rather similar in the first half of the fourteenth century, but the elites in the former become more egalitarian afterwards albeit the number of observations for Hainaut are limited. In both capitals, the ratios are generally confined to the interval of 15% and 25%, much lower than those observed for Florence. The differences in β coefficients are less outspoken yet still visible: between 1325 and 1500, the average value for Florence was 2.19 versus 1.61 for Flanders and Hainaut. Given the extremely high levels of wealth per capita in the Florentine capital (see Chapter 4.2 All for one), these results are in line with what we would expect.

Looking at the relative evolution, more differences can be observed between the three capitals. As we have seen, the current historiographical consensus posits that wealth inequality declined significantly after the Black Death because of the losses at the top of society. Figures 5.1 and 5.2 reveal that these changes were not uniform among the wealthy across Europe. A marked decline is visible for the city of Bruges between 1339 and 1440, with both measures falling to almost half their initial value. Besides the Black Death, two other episodes of declining inequality stand out. Between 1306 and 1316, the wealth ratio dropped by circa 10% and the coefficient β was halved. The trend is undoubtedly connected to the disastrous effects of the Franco-Flemish wars (1297-1305 and 1314-16) and the Great Famine (1315-17). According to Walter Scheidel, such shocks had the potential of reducing disparities on the condition that they caused mass mortality and/or destruction. In fact, he believed that catastrophic events were the only drivers of equality in premodern history.[536] At the surface, the data for Bruges seem to confirm this idea. However, both mortality and destructions remained limited. Even though the Great Famine was one of the most severe famines ever to hit Northwestern Europe, the number of deaths only amounted to circa 10% of the population, mostly concentrated among the poorest households who could not cope with the increased grain prices.[537] Given that elites were the largest landowners, the higher prices may have brought them more wealth and may have pushed inequality upwards. Admittedly, there is no convincing evidence that landlords speculated on the grain market in the medieval County of Flanders. Instead, they seem to have sold grain whenever there was a

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[536] Walter Scheidel, *The Great Leveler. Violence and the history of inequality from the stone age to the twenty-first century* (Princeton: Princeton University Press, 2017), esp. 289-342.
[537] Van Werveke, "La famine de l'an 1316," 6-8; W.C. Jordan, *The Great Famine: Northern Europe in the Early Fourteenth Century* (Princeton: Princeton University Press, 1997).

FIGURE 5.1 WEALTH RATIO BETWEEN THE TOP 0.1% AND THE TOP 1% OF CAPITAL CITIES
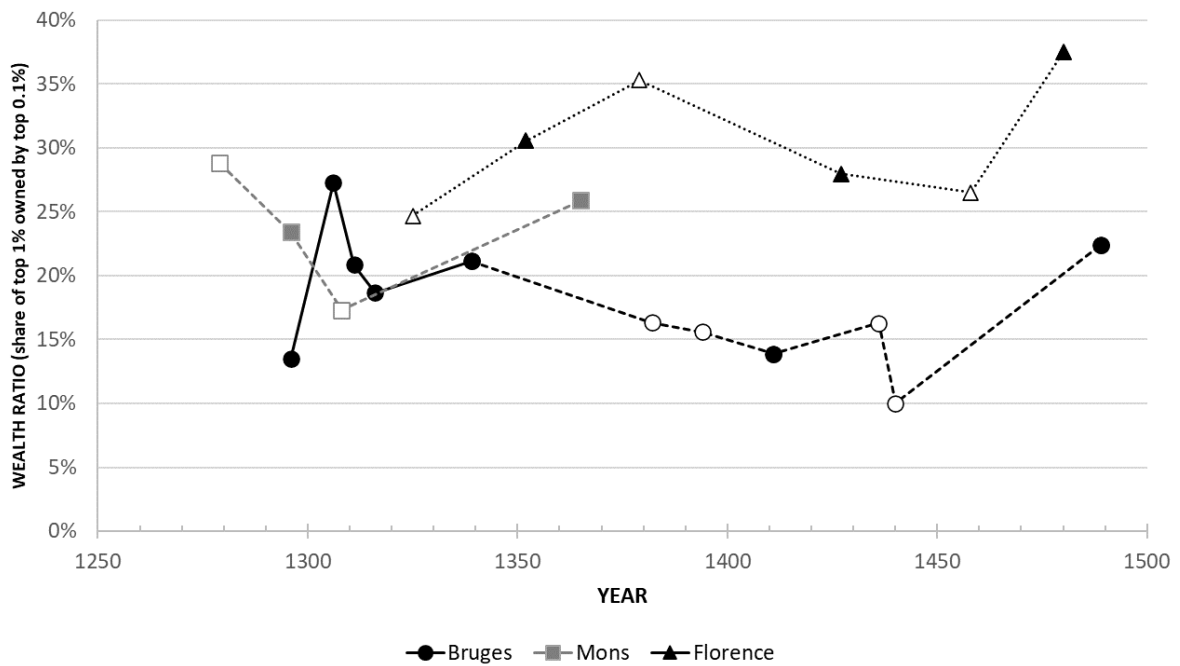
Notes: Ratios based on sampled data or on sources pertaining to only some parts of the city are indicated by an empty symbol and surrounding trends are indicated by a dashed line.

Sources: see Table 5.1

FIGURE 5.2 AVERAGE WEALTH DIFFERENCES AMONG THE TOP 1% OF CAPITAL CITIES
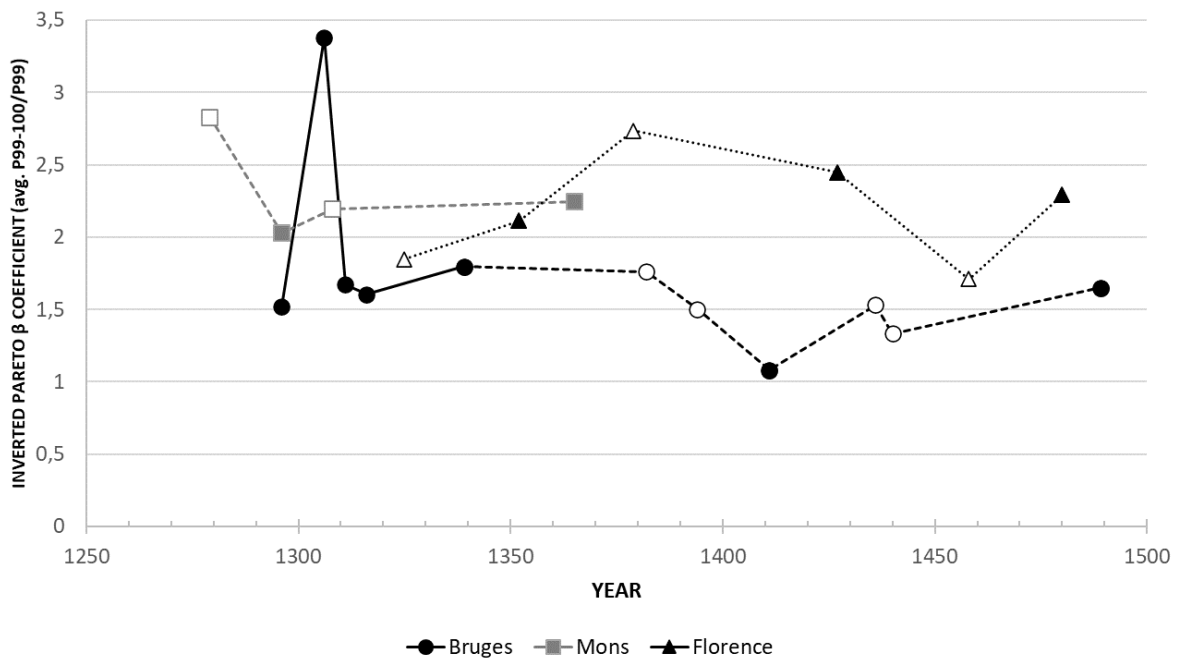
Notes: β coefficients based on sampled data or on sources pertaining to only some parts of the city are indicated by an empty symbol and surrounding trends are indicated by a dashed line.

Sources: see Table 5.1

surplus at hand.[538] In addition, the destruction of properties in the wake of the Franco-Flemish wars were concentrated near the border, leaving most of the County unscathed. As such, the events do not seem to fit the explanatory framework of Scheidel and we should look at other factors. For the income and wealth of the top 1%, the severe disruption of trade with the Kingdom of France was probably much more important. For example, King Louis X banned all exports between the summer of 1315 and the autumn of 1316. Moreover, the Flemish elites were politically divided during the warfare: Lilies (*Leliaards*) sided with the French, whereas the Claws (*Klauwaards*) remained loyal to the Count. Depending on the tide of battle, goods of the losing party were confiscated in occupied territories and sold off to finance the war.[539] In the end, no clear winner emerged and probably left the elite Claws and Lilies impoverished. The second episode of declining inequality occurred between 1436 and 1440 (wealth ratio fell 6.3% and the coefficient β likewise was reduced by 0.20) for very similar reasons. As a reaction to a revolt of Bruges (1436-1438), the Burgundian Duke Philip the Good ordered the blockade of all naval trade to the city. When the insurrectionist surrendered, a heavy fine was imposed on them and a larger share of the public revenue was appropriated by the Duke.[540] In both instances, the reduction in inequality seem to have been temporarily. Within a few decades, disparity in the top 1% once again reached its earlier levels.

The trend for Mons is less clear due to the limited number of observations. The share of the top 1% owned by the top 0.1% seem to have increased by half its initial level between 1308 and 1365. The increase in the β coefficient is more limited, from 2.19 to 2.25. Based on the evolution in Bruges, it is certainly possible that inequality had increased again between 1308 and the Black Death. Subsequently, the precise impact of plague is somewhat obscured. Nevertheless, the levels of inequality are rather high in 1365 for a city of circa 10,000 inhabitants, the smallest of the three currently under study. If there was an egalitarian effect of plague, it must have been relatively limited. Demographically and economically, Mons is very much an exception to the Crisis of the Late Middle Ages. Its total population grew by a third between the beginning and second half of the fourteenth century. Having acquired the status of the political capital of the County in this period, it attracted many wealthy officials and a luxury economy developed in their wake. Accordingly, it is plausible that disparities were growing among the rich during much of the fourteenth century.

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[538] Espeel, "Prices and crises," 239-76.

[539] W. Prevenier, "Leliaards en Klauwaards voor en na 1302. Loyaliteit, collaboratie en opportunisme," in *Omtrent 1302*, ed. P. Trio, D. Heirbaut, and D. van den Auweele (Leuven: Leuven University Press, 2002); Geens, "The Great Famine in the county of Flanders (1315–17): the complex interaction between weather, warfare, and property rights."

[540] J. Dumolyn, *De Brugse opstand van 1436-1438*, Standen en Landen (Heule: UGA, 1997).

For the city of Florence, we have an observation just two decades before the Black Death, at its medieval demographic and economic height. The next data point is only four years after the first pandemic outbreak, which allows us to assess the impact of plague with much greater precision compared to the Southern Low Countries. Figures 5.1 and 5.2 both show a strong increase of inequality until ca. 1410. One may argue that the picture is distorted due to the limited geographical coverage of the earliest fiscal source (see Appendix 5.1). However, we have sampled the 1379 *estimo* to include the same parishes as those included in the 1325 *prestanza*, so these two observations are directly comparable. Again, growing differences among the top 1% are unmistakably: the wealth ratio increased from 24.7% to 35.3% (+42.9%) and the β coefficient from 1.85 to 2.74 (+48.1%). This period witnessed a strong revival of the Florentine textile industry and the rapid expansion of the territory with the incorporation of major centres, such as Pistoia (1351), Volterra (1361), Arezzo (1384), and Pisa (1405).[541] As we have seen in the previous chapter, wealth per capita increased significantly in the city of Florence. Apparently, the spoils of war and the profits of the booming economy were also increasingly concentrated among the elites of the capital, mainly benefitting those at the very top of society. This trend was temporarily reversed in the first half of the fifteenth century and inequality among the top 1% returned to its pre-Black Death levels by 1458 (wealth ratio of 26.5% and β coefficient of 1.71). Recurrent plague waves seem to fall short of an explanation seeing how they became less deadly in this period. Although mortality rates of 20% were still achieved in some years (1400, 1417, and 1430), the level of the fifteenth century was more commonly below 5% (see the general introduction to the thesis). Just as in the case of Bruges, warfare and the state of the economy seem to correlate better with the fate of the top 1%. By 1410, the age of expansion had reached its limits. Military campaigns became aimed at defending the territory, mainly against the Duchy of Milan. The cost of war was immense, but in contrast to the fourteenth-century campaigns yielded little to no gains. For example, citizens paid the equivalent of a third of their total wealth between 1424 and 1427 (2,294,216 florins collected versus a wealth survey of 7,610,824 florins) and again between 1429 and 1433 (2,535,575 florins) to finance the defence against Milan and Lucca.[542] At the same time, the textile industry faced a severe crisis. The production of woollen cloth declined from circa 30,000 bolts in 1373 to 11,000 bolts in 1430.[543] This economic and financial crisis seem to have hit the top 0.1% proportionally harder than the top 1%, resulting in a temporary reduction in differences among the wealthy.

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[541] Goldthwaite, *The Economy of Renaissance Florence*.

[542] Padgett, "Industrial Dynamics," 26.

[543] Goldthwaite, *The Economy of Renaissance Florence*, table 4.1.

Obviously, changing fortunes among the rich and powerful do not tell the whole story. As we have seen in the introduction of this paragraph, the evolution is not necessarily representative for the evolution found in the whole community or region. We therefore introduce a second category of measures, namely the share of wealth owned by the rich, which is commonly used in the current literature as a proxy of the general trend (cfr. supra). However, this methodology requires two additional pieces of information that are usually not included in the fiscal registers. First, we need to determine the total wealth of the capitals or regions. Luckily, we have already calculated both variables in the previous chapter. Since they are confined to three different periods, we will focus on the most complete fiscal sources in surrounding years. If robust tax records were available for an intermediate period, we have calculated total regional wealth by fitting a simple linear regression between the two data points. This was only necessary in the case of mid-fourteenth century Republic of Florence. For the share of regional wealth owned by elites in Mons in 1365, we were forced to use the estimate of 1444 as it is the earliest available data on total wealth. Second, we need to determine the tax rates to convert the quotes of the top households into wealth figures. In some cases, this information can be deducted directly from the source. For instance, documents pertaining to the *prestanza* of 1325 inform us about the minimum wealth threshold to be included in the forced loan. The tax rate can subsequently be calculated by dividing the minimum quote by this threshold (see Appendix 5.1). In other cases, we have to employ a more indirect approach. For Bruges, for example, we have estimated the tax rate for the fiscal register of 1296 by confronting the quotes of the households with an earlier taxation. In 1292, many of the same households were listed per wealth bracket to determine the extent of military aid they had to provide (see also Appendix 4.2).[544] Lastly, an estimation of tax rates is unnecessary whenever the source encompasses the whole fiscal population, such as the *catasto* of 1427. We can simply use the share of the elites in the total tax revenue as a direct substitute for their part in communal wealth. For the regional level, we can multiply these figures with the relative importance of the capital in the total stock of wealth.

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[544] Jozef de Smet, "De Inrichting van de Poorterlijke Ruiterij te Brugge in 1292 en haar Indeeling in Gezindheden in 1302," *Verslagen en mededelingen van de Koninklijke Vlaamse Academie voor Taal- en Letterkunde*, no. 6 (1930).

TABLE 5.2 SHARE OF WEALTH OWNED BY THE ELITES IN CAPITAL CITIES

	Share of communal wealth (%)			Share of regional wealth (%)		
	c. 1300	c. 1350	c. 1400	c. 1300	c. 1350	c. 1400
A) County of Flanders: Bruges (1296, 1394-96)						
Top 1%	16.2		(9.0)[1]	2.5		(1.4)[1]
5%	35.4		(24.6)[1]	5.4		(3.9)[1]
10%	n/a		(35.7)[1]	n/a		(5.7)[1]
B) County of Hainaut: Mons (1279, 1365)						
Top 1%	(19.3)[1]	10.7			(0.9)[2]	
5%	(50.7)[1]	30.5			(2.7)[2]	
10%	(66.8)[1]	42.6			(3.8)[2]	
C) Republic of Florence: Florence (1325, 1352, 1427)						
Top 1%	(19.0)[1]	18.2	28.7	(5.4)[1]	(7.0)[3]	19.3
5%	(44.7)[1]	37.6	52.4	(12.7)[1]	(14.4)[3]	35.3
10%	(62.6)[1]	50.1	65.4	(17.8)[1]	(19.3)[3]	44.0

Notes:
1. Limited geographical coverage, see Table 5.1
2. Based on the total wealth in 1444.
3. Based on linear regression of regional wealth between c. 1300 and c. 1400

Sources: see Table 5.1

Table 5.2 list the share of communal and regional wealth owned by the top 1%, 5%, and 10% in each of the capitals. Again, the city of Florence stands out as the most unequal, with elites owning as much as 65.4% of the total communal wealth and even 44% of all regional wealth. Bruges is once more the most equal community of all three. Here, elites owned but a fraction of the total stock of the County (maximum 5.7%). In regard to the evolution at the communal level, all data seem to confirm the egalitarian impact of the Black Death. For Bruges, this trend is in line with the one we found earlier among the wealthy, but for Florence and Mons this is the opposite. Indeed, in these two capitals, the decline in the share owned by top 1% was less outspoken than the decline observed for the top 5% and 10%. For example, in Florence, the former group only lost circa 0.8% of the total share whereas the latter lost on average 6.3%. Apparently, the higher concentration of wealth at the very top did not lead to higher inequality in general due to the gains of lower classes. Yet, these gains appear to have been short-lived. Already by 1427, a century earlier than in most of the other communities studied in historiography, the share of the top 10% in the Florentine capital surpassed the levels of the early fourteenth century. For the top 1%, this might have happened even sooner given that their share in the total wealth had already increased by half by this date (+51.1% compared to 1326). In Bruges, no such trend is visible and the top 1% was still characterised

by the greatest losses of all groups by the fifteenth century (-44.4% compared to 1296). The results for Florence are even more remarkable when we focus our attention towards the regional wealth. Here, no reduction in inequality is visible. Some modest gains are visible across the entire strata of elites after the Black Death. By 1427, the top 1% and 5% managed to triple their share in the total wealth (respectively from 5.4% and 12.7% in 1326 to 19.3% and 35.3%). In this regard, the personal distribution of wealth seems to have followed the increasing geographical concentration of wealth we have outlined in the previous chapter.

The above observations for Florence stand in stark contrast to the long-term evolution towards equality described by Alfani and Ammannati for the rest of the Republic.[545] However, it is very difficult to interpret to what extent these results also alter our understanding of inequality in the region as a whole. Do we give more weight to the capital as the majority of wealth was concentrated here (67.4% of the total stock) or is the picture for other communities more representative because most households were living there (85.7% of total population)? Likewise, there is no guarantee that the County of Flanders was more equal when we account for other communities. Perhaps the low share of elite wealth in the capital can be attributed to the spread of the rich and powerful across different cities and villages. Perhaps the top 1% in Bruges does not correspond to the top 1% in the County as well as it does in Florence. What we need are regional distributions of wealth that integrate the data for different type of communities. Only through such a holistic approach may we truly assess if the mass of the population experienced a Golden Age for labour during the late medieval period. This ambitious goal is the central topic of the next section.

5.2 From top to bottom. Regional wealth inequality among households

It is no coincidence that the *catasto* of 1427 has attracted much scholarly attention. For the premodern period, there are but preciously few documents that provide such a comprehensive picture of the personal wealth distribution for an entire polity.[546] The *catasto* allows us to calculate regional inequality directly for the fifteenth-century Republic of Florence, but, in most cases, historians have to contend themselves with local taxations. In a similar vein, economists need to rely on samples of households' surveys for a certain number of countries to calculate present-day global inequality. One solution to the fragmentary nature of the data has been to compare between-polities differences and ignore any within-

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[545] Alfani and Ammannati, "Long-term trends."

[546] Most comprehensive distributions for the premodern period refer to income. See for example the *tiende penning* and *verponding* for Holland. Soltow and van Zanden, *Income and Wealth Inequality*.

polity differences. For instance, income inequality can be measured through the average GDP per capita for every country, falsely assuming everyone enjoyed the same level of income per country. In the previous chapter, we have likewise calculated the average wealth per inhabitant in the Southern Low Countries and Tuscany. Although the approach provides important insights with little data, it doesn't tell us how different groups in different communities compare to each other. It is for instance possible for a country to have a higher GDP per capita than another while most of its population is in fact poorer than the lion's share in the latter country. In his seminal study on global inequality, Branko Milanovic distinguishes three different ways of measuring inequality across communities. The first one relates to the solution we just described. The second one adds the importance of population to the equation. For example, India currently houses hundred times more people than Belgium. Even though the average wealth per capita is twenty-five times higher in the latter country, its impact on the global distribution would be far more limited.[547] The third way incorporates within-country differences.[548] In our example, we would rank every household according to their wealth. It doesn't matter whether they belonged to one or the other country. In this scenario, it is possible for certain Indian households to be wealthier than Belgian ones even when national averages are different. Indeed, the richest person in India, Mukesh Ambani, has an estimated net worth of 90.7 billion USD whereas the richest Belgian, Eric Wittouc, is worth 'only' 9.0 billion USD according to the Forbes billionaires list of 2022. There are in total 166 Indian billionaires versus 3 in Belgium.[549] Based on these limited statistics alone, it is already easy to imagine that the third way of measuring inequality across communities is preferable over the other two.

So how do we overcome the lack of historic sources and account for within-differences? Most famously, François Bourguignon and Christian Morrisson described a method to calculate global income inequality between 1820 and 1992. Datasets for the earlier period were often unavailable for all countries, so they were forced to project the distributions of similar societies with surveys onto them. This is no straightforward task as population figures varies significantly between countries. One cannot fit the income distribution of say 59 households to a similar group of 47 households by randomly omitting certain incomes. Some prior standardisation is necessary. To this end, Bourguignon and Morrisson determined the share owned by each decile within a given country. For the top decile, which is the most influential

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[547] Anthony Shorrocks, James Davies, and Rodrigo Lluberas, *Global wealth report 2019* (Credit Suisse Research Institute 2019).

[548] Branko Milanovic, *Worlds Apart: Measuring International and Global Inequality* (Princeton: Princeton University Press, 2005), 7-30.

[549] Kerry Dolan and Chase Peterson-Withorn, "Forbes. World's billionaires list," https://www.forbes.com/billionaires/.

in shaping the distribution as we have seen, more precision was added by splitting it up in two ventiles (i.e. P91-95 and P96-P100). Next, they multiplied the shares with the GDP per capita, as a proxy for income, and the number of people each of these eleven groups represent. For this step, they assumed that everyone within one of these eleven subgroups earned the same income. Simply put, they rescaled national income data based on the relative importance of each person in a fictive population of 100 (i.e. a percentile distribution), which can then be applied to match the weight of any country without data. Although the methodology implies a loss of some information, grouping incomes into deciles and ventiles, it is detailed enough to provide a robust estimate of inequality.[550] For the premodern period, similar methodologies have been applied by Jan Luiten Van Zanden and Lee Soltow for the Northern Low Countries as well as by Guido Alfani et al. for Italy, Germany and the Southern Low Countries.[551] The last mentioned group of scholars opted to increase the precision within the top ventile by splitting it further up into the top 1% and the rest. Since we aim to integrate our data for Florence with the already established series for the Republic, we have opted to follow their adaptation of the outlined methodology. Given the scope of the endeavor, we will limit ourselves to the reconstruction of regional wealth inequality around the beginning of the fourteenth and fifteenth century to assess the extent of the Golden Age. Shorter-term fluctuation can be deducted from our earlier estimates of elite inequality. Moreover, series for the later sixteenth century are already available for both regions, albeit related to income for the Low Countries (see the introduction).

The first step in our reconstruction of regional inequality is to select communities which are representative for multiple towns or villages and for which we have fiscal sources. As we have seen, data on the personal distribution of wealth is very scarce for the medieval County of Hainaut due to the loss of the state archives (see Chapter 4.4 The third musketeer). With the exception of the city of Mons, we have no knowledge of any other community with fiscal registers predating the Black Death. While some sources become available for the small towns of Soignies and Chièvres from the late fourteenth century on, they are severely lacking for the countryside. Only at the end of the fifteenth century do we find taxations of the rural villages of Antoing, Kain, and Hoves-Graty, but they are hardly representative for the County as a whole, which encompassed more than six hundred villages. For the sixteenth century, the situation is reversed. For instance, a comprehensive hearth tax of the entire countryside was

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[550] Francois Bourguignon and Christian Morrisson, "Inequality Among World Citizens: 1820–1992," *American Economic Review* 92 (2002).

[551] Soltow and van Zanden, *Income and Wealth Inequality*, 25-31; Alfani, "Economic Inequality in Northwestern Italy."; Alfani and Ryckbosch, "Growing apart in early modern Europe?."; Guido Alfani, Victoria Gierok, and Felix Schaff, "Economic Inequality in Preindustrial Germany, ca. 1300–1850," *The Journal of Economic History* 82, no. 1 (2022).

conducted in 1540 and some detailed registers have been preserved for the *vingtième*, a tax on the sale of immovable properties in the second half of the century. In contrast, no similar fiscal documents are available for the cities as far as we are aware.[552] Consequently, it is impossible to reliably reconstruct regional inequality for the medieval County of Hainaut, let alone retrace its evolution during the Golden Age for labour.

For the Republic of Florence, we can build upon the already existing reconstruction of regional wealth inequality by Guido Alfani. However, the series only begin in the first half of the fifteenth century, not because of a lack of localised sources but due to the way taxes were levied. As we have discussed in Chapter Three (see 3.1 To tax or not to tax?), criteria for taxation varied significantly between communities and over time before the introduction of the more centralised system of the *catasti* in 1427. For example, many of these earlier lists make use of local units without any mention of their monetary value. It was therefore impossible for Alfani to compare different registers predating the Black Death.[553] Luckily, we can now remedy the issue thanks to our earlier calculation of the absolute stock of regional wealth around the year 1300 (cfr. infra for the application of this data). To push the series of inequality back to this date, we have selected all those communities that were included by Alfani and that have tax registers for the early fourteenth century. In line with his methodology, we have made a distinction between town and countryside. Multiple observations in historiography have pointed out that inequality levels were generally much higher in the former compared to the latter. Next, we have grouped communities in both categories based on their average wealth per inhabitant. Although there is no conclusive evidence that higher levels of wealth or GDP per capita always result in higher levels of inequality, the potential for disparities is certainly greater.[554] It is therefore preferable over demographic criteria, which show contrasting correlations with inequality once controlled for the urban-rural difference. In one study, no correlation could be found whereas population density had an egalitarian impact in another study.[555] In yet another case, higher population levels were positively correlated to the Gini coefficient, albeit no dummy for

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[552] See for instance the overview of available and lost sources in Arnould, *Les dénombrements de foyers*, XII-XXIII.

[553] Alfani and Ryckbosch, "Growing apart in early modern Europe?," Appnedix D.

[554] The correlation with Gini coefficients is generally positive but often borderline (in)significant. One plausible explanation is that economic growth does not necessarily lead to higher inequality over time, but higher levels of wealth or GDP within one region at one particular time are more closely related to higher inequality. See the discussion in Soltow and van Zanden, *Income and Wealth Inequality*, 139; Ryckbosch, "Economic inequality and growth " 12-13; Alfani, "Economic Inequality in Preindustrial Times," 19-21.

[555] Alfani and Ammannati, "Long-term trends," table 6; Branko Milanovic, "Towards an explanation of inequality in premodern societies: the role of colonies, urbanization, and high population density," ibid.71 (2018): table 2.

urbanisation was incorporated in the regression.[556] For the Republic of Florence, the city of Prato is chosen as representative for the towns with low levels of per capita wealth, namely Volterra, Castiglione Fiorentino, and San Miniato (average wealth of 1.75 kg. silver per inhabitant in 1427).[557] Reversely, the city of San Gimignano represents those with average levels of per capita wealth (on average, 2.38 kg. silver per capita).[558] For the countryside, we have made the distinction between the *contado* and the *distretto* given that we observed a more significant decline in the average wealth in the *contado*. For this area, we have selected the villages of the Commune di Poggibonsi over those of Santa Maria Impruneta because they represent a larger share of the rural population and because they seem to match the trends of the *contado* better in Alfani and Ammannati's rural series for the period between 1350 and 1700.[559] For the *distretto*, the countryside of San Gimignano provides us with the most extensive sample.[560] Lastly, we have added the all-important capital of Florence to the sample as the only urban community with high levels of per capita wealth (9.84 kg. silver per capita in 1427). For the fifteenth century, we could rely on the well-known *catasto* of 1427.[561] For the period before the Black Death, the only preserved register pertains to the richest quarter of households in a single *sesto* (i.e. a sixth of the city). It is nevertheless possible to model the entire distribution based on this information. To keep the discussion focused, the different steps are explained in Appendix 5.1.

For the County of Flanders, it is impossible to compare the same sample of communities over the two periods due to the lack of sources. For the same reason, we were unable to find fiscal registers for an early-fourteenth town with low levels of per capita wealth. Instead, we have to rely on the data for towns with average levels. Given that inequality tends to be greater in these cities, we risk overestimating inequality before the Black Death.[562] However, the demographic weight and the stock of wealth of the misrepresented towns are severely limited for this period (respectively, <5% and <2% of the total) and would thus not alter the results in a significant way. Starting at the top of the urban pyramid, the cities of Ypres and Bruges have been selected for towns with high levels of wealth (on average, 7.66 kg. silver per capita

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[556] Ryckbosch, "Economic inequality and growth " table 1.

[557] Data on decile shares can be found in Alfani and Ammannati, "Long-term trends," table 4.

[558] As data was only given by Alfani and Ammannati for the city and countryside together, we have calculated the necessary shares based on Fiumi, *Storia economica e sociale di San Gimignano*, 114.

[559] Alfani and Ammannati, "Long-term trends," Figure 3b. Decile shares for Poggibonsi were not included in the article, but the distribution for the year 1338 was reported in Alfani, "Economic Inequality in Preindustrial Times," online dataset, figure 4 (distributions). For 1427, we have calculated the shares based on Herlihy and Klapisch-Zuber, "Online Catasto of 1427."

[560] See footnote 558.

[561] Herlihy and Klapisch-Zuber, "Online Catasto of 1427."

[562] Compare for example the decile shares of Oostende (low level) and Kortrijk (average level) in Appendix 5.2.

in 1408).[563] Similar to the capital of Florence, the tax registers for Ypres from 1326 only pertain to the richest third of the population. A comparable method to model the lower end of the distribution is discussed in Appendix 5.2.

Moving one step down the ladder, we find towns with average levels of wealth (3.62 kg. silver per capita). They are represented by Kortrijk for the fifteenth century and by Nieuwpoort for the fourteenth century.[564] The data for the last-mentioned town is derived from a particular wealth tax. It pertains to the newly drafted cadastre for the *'s gravenlandschuld* in 1313. As the literal translation "debt for the comital lands" suggests, the tax was a customary rent (*cijns*) of 1d. per *roede* land (2.75 lb. per hectare) payable to the count. Subsequently, the tax only informs us about land inequality between citizens owning a plot in the city centre or its suburbs.[565] Nevertheless, it is the most comprehensive source on urban wealth we have for this period. Given that the whole of Nieuwpoort was subject to the *'s gravenlandschuld* (encompassing ca. 44 ha.), every landowner is recorded.[566] Based on the ratio between the number of plots and the number of unique contributors, the cadastre contains circa two thirds of the total population.[567] Moreover, land inequality is a good proxy for wealth inequality in pre-industrial societies because it constituted one of the most important assets for investment. This is especially true for the countryside where land was the primary factor of production, but also applies to urban settings.[568] Citizens, even those with modest means, often purchased plots in the hinterland to secure additional income or already owned a piece of land thanks to the rural background of the household (migration) or the family (inheritance). The cadastre of Nieuwpoort also includes parts of its rural suburbs. Given that most investments were made in the direct vicinity of one's residence, the *'s gravenlandschuld* also captures these assets but not those further away. While this is an important omission, the

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[563] Aside from Bruges and Ypres, the city of Ghent is also included for the fourteenth century and Damme for the fifteenth century. Decile shares for Ypres are calculated in Appendix 5.2. For Bruges, they can be calculated from De Meyer, "De sociale strukturen te Brugge in de 14de eeuw," table V.

[564] Other cities with average wealth are Poperinge, Sluis, Torhout, Diksmuide, Oudenburg, Broekburg, Aardenburg, Nieuwpoort, Biervliet, Kortrijk, Oostburg, and Veurne. Ghent is included for the fifteenth century only.

[565] Landowner is always an ambiguous term for the premodern period. Today, ownership is associated with exclusive rights to a plot of land, but in the past different actors could claim different types of rights. In this specific case, landowner refers to the person who has the initial right of use and who is able to pass that right (temporarily) to another party through sale, short-term rent, or inheritance.

[566] The cadastre is published in Robert de Noortvelde, *Nieuport. Documents historiques: Sigillographie, topographie, comptes, cadastre, épitaphier, etc.*, vol. 2 (Oostende: Imprimerie Centrale Albert Bouchery, 1904), 111-66. For more information about the *'s gravenlandschuld* see R. Degryse, "'s Graven domein te Nieuwpoort," *Handelingen van het Genootschap voor Geschiedenis* 85, no. 1 (1948).

[567] Filtering out the institutions leaves us with 1437 plots and 899 unique owners.

[568] Bas van Bavel, Daniel R. Curtis, and Tim Soens, "Economic inequality and institutional adaptation in response to flood hazards a historical analysis," *Ecology and Society* 23, no. 4 (2018): 3.

data may still be representative. For instance, in a sample of circa 1,000 probate inventories between 1349 and 1400 of citizens from Ghent, the largest city of medieval Flanders, more than three fourths of all landed property was situated in the two castellanies bordering the town and about one third within a radius of five kilometres. A simple linear regression between the value of land and the total wealth listed in the inventories suggests a very strong relationship between the two variables (R^2=0.846, p<0.001).[569] Indeed, when we compare the decile shares of the cadastre of Nieuwpoort with those for other cities in the County of Flanders or the Republic of Florence, the results appear to be well in line with the expected intervals for the distribution of urban wealth (see Appendices 5.3 and 5.4). One final remark pertains to the unit of taxation. Whereas most of our sources depart from the household, the *'s gravenlandschuld* focuses on individuals. Although most of the assets acquired during marriage would have been owned by the two spouses jointly and listed under the name of the male head, the difference is important because inherited and gifted land as well as acquired plots before marriage remained the exclusive property of one of the spouses. Unfortunately, the cadastre doesn't specify the martial status of women except for widows. Consequently, they may appear as separate landowners even though some parts of the household's wealth are potentially already recorded under the male head. The share of non-widowed women is minor in the total population (12.7%) and in the total wealth (8.7%) yet not insignificant. We therefore performed a robustness check for their impact on the wealth distribution: removing all non-widowed female landowners from the data reveals that their wealth was proportionally distributed over the different deciles (see Table 5.3). Accordingly, it is safe to assume that the differences between household and individual wealth was limited in Nieuwpoort at the time.

The last tier of towns, those with relatively low levels of wealth (on average, 1.64 kg. silver per capita), is represented by fifteenth-century Oostende. As mentioned before, there are no comparable records for the earlier period. For the countryside, we have selected three different areas. Before the Black Death, differences across the County were still limited and a single sample suffices. A rare fiscal register from 1304, covering multiple villages, has been

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[569] Database compiled with Wouter Ryckbosch based on Wynant, *Regesten van de Gentse staten van goed*. For more information on the source and the methodology, see Geens, "The great destruction." Stef Espeel and Sam Geens, "Feeding inequalities: the role of economic inequalities and the urban market in late medieval food security. The case of fourteenth-century Ghent," in *Disuguaglianza economica nelle società preindustriali*, ed. Giampiero Nigro, Datini Studies in Economic History (Firenze: Firenze University Press, 2020).

TABLE 5.3   ROBUSTNESS CHECK FOR THE DIFFERENCES BETWEEN HOUSEHOLD AND INDIVIDUAL WEALTH IN NIEUWPOORT (1313)

| | Share owned (% of total) | | |
Decile	Excl. non-widowed women	All individuals	Difference
1	0.75	0.99	-0.24
2	1.77	1.83	-0.07
3	2.73	2.78	-0.06
4	3.58	3.66	-0.08
5	4.12	4.21	-0.09
6	4.93	4.99	-0.07
7	6.20	6.35	-0.15
8	8.24	8.56	-0.31
9	13.14	13.33	-0.18
10	54.53	53.29	+1.23
Gini	0.633	0.619	+0.013

Sources: de Noortvelde, Robert. *Nieuport. Documents Historiques*, 111-166.

preserved for the castellany of Sint-Winoksbergen.[570] The *bundergeld* was an extraordinary levy on landed properties at a rate of 1 d. per 25 *roede* (or 27.25 d. per hectare). Like the *'s gravenlandschuld* of Nieuwpoort, quotes were listed per residing individual (N=1254) and not per household. As such, the same remarks apply to this case. For the period around 1400, we have made the distinction between the countryside of Inland Flanders and the wealthier but less populated villages of Coastal Flanders. For the last-mentioned area, the most comprehensive source is yet another land tax. This time, two *verhoofdingen* of water boards in the castellany of the Brugse Vrije – one for Eiesluis in 1398 and another one for the Oud Yevene in 1388 – list all the owners and the size of their plots to determine their annual contribution for the upkeep of the water works, such as dikes and sluices.[571] Contrary to the previous two land taxes, the *verhoofdingen* only inform us about properties inside the respective jurisdiction of the two water boards. However, the data is still representative since

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[570] The data on decile shares has been graciously provided to me by Thijs Lambrecht and Mathijs Speecke before the publication of their article, for which I am very grateful. For the data: Mathijs Speecke and Thijs Lambrecht, " Database land tax Flanders 1304," (2022). For more background information and analysis: Lambrecht and Speecke, "Economic Structures, Vulnerability and Popular Protest in Rural Flanders, c. 1300-1320."

[571] I am grateful to my supervisor Tim Soens for providing the data. For background information and an analysis, see: Soens, *De spade in de dijk?*, 73-77.

Eiesluis and Oud Yevene encompassed a sizeable area of Coastal Flanders (together ca. 7,500 hectares). Another difference pertains to the inclusion of land owned by institutions and privileged groups. Aside from nobility and clergy, this last group also includes urban landowners, who were normally exempt from taxation in the countryside (see Chapter Four). Our wealth figures of the previous chapter likewise calculated the total wealth of townsmen based on all their assets, wherever they were located. Accordingly, institutions and all privileged individuals have been removed from the sample for comparability. In the end, 1,900 owners of the initial 2,385 were withheld (equal to about 6% of the total population in Coastal Flanders). The robustness of the results is difficult to check given that we only have more traditional fiscal registers for a handful of villages or even parts of villages, rarely encompassing more than a few dozen of households. Inequality measures subsequently vary significantly from one list to another (from a Gini coefficient of 0.312 to 0.596) and are hardly representative for the wider area.[572] At least the Gini coefficients for the *verhoofdingen* separately are comparable to one another and to the one for the two taxations combined (0.640 for Eiesluis, 0.651 for Oud Yevene, and 0.655 together). In addition, the differences in the decile shares with those of Sint-Winoksbergen in 1304 appear to be in line with the changes described for Coastal Flanders in the historiography, showing significant losses for the bottom half of the distribution (see Appendix 5.4).

For Inland Flanders, we have selected the taxation of outburghers by the city of Kortrijk in 1440. Outburghership was a medieval institution that allowed rural residents to acquire citizenship of a town through purchase or birth even when they lived in the countryside for a prolonged period. In Kortrijk, the requirement to spend a minimum number of days in the city (in this case, three times forty days) was bought off by the outburghers in 1398. While the precise privileges and obligations of this particular status varied from place to place, they mostly implied the freedom from feudal levies, such as heriot taxes, in exchange for an annual contribution and/or military service. As subjects of the town, they could be taxed alongside citizens though often at a lower rate. In 1440, the officials of Kortrijk charged them at a rate of 0.2% of their total wealth whereas households residing in the city paid a contribution equal to 0.3% of their total wealth.[573] Usually, taxation records of outburghers are hardly representative for the countryside because they belonged to a wealthier stratum of farmers or artisans who either lived just outside the city walls, like in Blankenberge, or across the entire

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[572] Based on the data for the villages of Westkapelle (max Gini of 0.596), Aardenburg (0.551), Slijpe (0.489), Dudzele (0.455), Uitkerke (0.455), Bredene (0.454), Oostkerke (0.437), Zuienkerke Ambacht (0.424), Lissewege (0.470). Calculated on distributions given in Zoete, *De beden in het graafschap*, Appendix XIII. Or reported in Lambrecht and Ryckbosch, "Economic inequality in the rural Southern Low Countries."
[573] Pauwelyn, "De gegoede burgerij van Kortrijk in de 15e eeuw (1433-1496)."

County of Flanders in the case of more influential cities, such as Ghent. For them, outburghership was a source of social status. In stark contrast, outburghership was widespread in the case of the city of Kortrijk, both socially and geographically within but limited to the castellany of Kortrijk. In his master's thesis, Marc D'Hoop compared the number of outburghers per village with the population data from the hearth census of 1469. In the thirteen parishes around the city, no less than 93.15% of the rural households had acquired citizenship. Further away, their share was somewhat lower but still encompassed around three fourths of the total population even though smaller towns, such as Tielt, were located here and also offered the option of (out)burghership. The only exception are the villages around Deinze where 'only' 36.54% of the population possessed the status. This is hardly surprising given that these villages were located closer to the metropole of Ghent than to Kortrijk (ca. 15 kilometres versus 25 kilometres).[574] Based on our own calculations of the total rural population of the castellany, the households included in the taxation of 1440 represent about 80% of the total.[575] Given that there were no outburghers residing outside the castellany, the data seems very representative for Inland Flanders. In addition and most remarkably, the average wealth owned by the contributing households closely resembles our own estimates for the total population of the castellany reported in the previous chapter (respectively, 2.356 kg. and 2.205 kg. silver). It shows that the outburghers of Kortrijk did not belong exclusively to the upper parts of rural society but rather encompassed the whole social strata.

Having established a representative sample for both the Republic of Florence and the County of Flanders, we can now reconstruct regional inequality by assigning the appropriate demographic and wealth weights to each (set of) communities. The first step is to convert the percentile distributions into absolute wealth figures by multiplying the share owned by each percentile with the average wealth per capita times hundred. For instance, each percentile of D7 owned 0.70% of the total wealth in fifteenth-century Prato and the average wealth of all citizens was 1.72 kg. silver (see Table 4.1). The wealth owned by these percentiles separately is then equal to 1.72 kg. silver * 100 percentiles * 0.7% of total owned, which returns 1.20 kg silver. Next, we account for the different size of communities by building what Alfani labelled "fictious distributions".[576] Rather than mimicking the exact population of the regions, we model a distribution of 10,000 individuals that reflects the proper ratios between

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[574] Marc D'Hoop, "Sociaal-ekonomische strukturatie en situatie van de Kortrijkse buitenpoorters (2e helft 14de -1e helft 15de eeuw)" (Licentiaatsverhandeling, Rijksuniversiteit Gent, 1980), 1-66.

[575] Based on a linear regression between 1408 and 1469, the population can be estimated at 32,462 inhabitants. According to D' Hoop, the taxation list entailed 26,407 individuals. For the bibliography on the demographic data, see Table 4.2.

[576] Alfani, "Economic Inequality in Northwestern Italy," 1081.

the different sample communities. This is done by duplicating the percentiles of the previous step as many times as the share of each community in the total population. For example, the Flemish countryside represented 60% of the total inhabitants in the early fourteenth-century County, so we have copied its wealth per percentile sixty times in our final distribution. A fictive population of 10,000 persons ensures that our data has a precision of one percent. Higher levels of precision may be achieved by increasing the size of the population exponentially, though differences in inequality measures would be minimal and seem unwarranted given the greater computing power necessary to conduct the calculations.

Table 5.4 reports the decile shares and the Gini coefficients for our regional series. Before we dive into the results and their meaning, we want to perform two robustness checks. First, the high-quality data of the *catasto* of 1427 allows us to test how close our samples for the fifteenth-century Republic resemble the real fiscal distribution of wealth. According to this source, the Gini coefficient of the region was equal to 0.813, which is very similar to our results based on 5 (sets of) communities (Gini of 0.824 or <2% difference) and which falls right into our 95% confidence interval. Likewise, the absolute differences between the decile shares are severely limited (on average only 0.22%). At least for this period and region, the data is thus representative for the wider region. In terms of measuring absolute levels of inequality, the inclusion of the city of Florence is a significant improvement over the series by Alfani, which suggested a Gini of circa 0.650 around 1427, an underestimation of 20%.[577] Below we will see to what extent the inclusion of the capital also influences the relative evolution of inequality in the Republic.

Second, we need to check the impact of the propertyless or, more broadly, the fiscal poor. Up to now, we have assumed that all households were solvable because the tax registers usually do not include those without taxable assets.[578] Yet, during the premodern period, a significant part of society had very little, no, or negative wealth (debt). As long as the number of poor households remained constant over time, their exclusion doesn't distort our understanding of inequality trends. Obviously, such an assumption is incompatible with the idea of a Golden Age for labour, which predicts a significant increase in wealth for the lower groups. Moreover, the varying nature of medieval taxation implies that the threshold for fiscal poverty could also change over time. It is therefore near-impossible to estimate the exact size of this group and its impact on the distribution of wealth. For the County of Flanders, this isn't problematic as the trend in inequality seems to already follow the assumed decline in the number of fiscal poor. For the Republic of Florence, the trend is however opposite (cfr.

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[577] "Economic Inequality in Preindustrial Times," Figure 2A.
[578] None-solvable households were accordingly always removed from distributions in sake of comparability.

infra). We therefore conduct a counterfactual analysis: to what extent does the number of fiscal poor need to change to reverse the evolutions observed in the Republic and how realistic is such a change? In the exceptional case of the *catasto* of 1427, we know that the share of exempt households amounted to 21.57% of the total. If we include this group, the Gini coefficient rises from the earlier reported 0.813 to 0.853.[579] According to Table 5.4, inequality was lower in the early fourteenth century. To arrive at a similar Gini coefficient for both periods, the number of fiscal poor in 1300 need to be set at double the rate of 1427 (with 43.20% of the total population set at 0 wealth, the Gini rises from 0.743 to 0.854). For a significant decrease over time, we need to push the ratio for the fourteenth century even higher, to a minimum of half the population (Gini of 0.871 and no overlap between the two 95% confidence intervals).

How plausible is such an evolution? According to contemporary chronicler Giovanni Villani, the city of Florence counted 17,000 paupers on a total population of 90,000 or 18.89% in 1330. This figure is a lower bound given that it only pertains to those without any wealth rather than those without taxable wealth.[580] Based on the ratio between the fiscal poor and propertyless in the *catsasto* of 1427, we must probably nearly double this figure to 34.83%.[581] More quantitative data for the city can be derived from a confrontation between the number of contributors in the *prestanza* of 1355 and the number of households in the *estimo* of 1352. Just a few years after the Black Death, the effects of rising real wages must still have been fairly limited. At this time, the share of the *miserabili fiscali* amounted to 37.30% of the total, which is similar to the earlier narrative evidence.[582] For the period before the Black Death, two late thirteenth-century surveys (*librae,* see Appendix 4) reveal that the number of fiscal poor encompassed respectively 11.47% and 37.15% of the urban and rural population in the area around San Gimignano.[583] Although the evidence is scant and patchy, it suggests that it is highly unlikely that the number of unsolvable households was so great that it could reverse the trends observed for the fiscal population. Most probably, the fiscal poor accounted for around a third of the population in the early fourteenth-century Republic of Florence. Under these conditions, a significant increase in inequality by the fifteenth can still be observed (from a Gini coefficient of 0.828 to 0.853).

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[579] Households with a taxable wealth equal to 0. Given the possibility for tax reductions and exemptions, the number of propertyless was lower (11.77% of total). Calculated from Herlihy and Klapisch-Zuber, "Online Catasto of 1427."

[580] Day, "The population of Florence," 95.

[581] See footnote 579.

[582] Stella, "Fiscalità, topografia e società a Firenze nella seconda metà del Trecento," 817.

[583] Fiumi, *Storia economica e sociale di San Gimignano*, 114.

TABLE 5.4 REGIONAL INEQUALITY IN FLORENCE AND FLANDERS (1300-1400)

	Distribution (% of total)		Evolution		Robustness check	
	c. 1300	c. 1400	Absolute	Relative (%)	Distribution (%)	Difference
A) The Republic of Florence (borders of 1427)					Catasto 1427	
D1	0.38	0.10	-0.28	-73.82	0.16	+0.06
D2	0.62	0.30	-0.33	-52.65	0.42	+0.12
D3	0.96	0.54	-0.42	-43.78	0.70	+0.17
D4	1.60	0.86	-0.74	-46.34	1.06	+0.20
D5	2.62	1.37	-1.26	-47.89	1.55	+0.18
D6	3.66	2.15	-1.51	-41.21	2.27	+0.12
D7	4.48	3.42	-1.06	-23.66	3.45	+0.03
D8	6.96	5.44	-1.51	-21.76	5.64	+0.20
D9	14.40	11.23	-3.17	-22.01	11.01	-0.23
D10	64.32	74.60	+10.28	+15.97	73.74	-0.85
Top 5%	50.10	62.61	+12.51	+24.96	61.90	-0.71
Top 1%	22.81	35.27	+12.45	+54.59	35.70	+0.43
Gini	0.743	0.824	+0.081	+10.95	0.813	-0.011
95% CI*	[0.732; 0.755]	[0.810; 0.838]				
B) The County of Flanders (excl. Walloon Flanders)					n/a	
D1	0.43	0.53	+0.10	+24.27		
D2	0.87	2.28	+1.42	+163.46		
D3	1.46	3.61	+2.15	+147.37		
D4	2.16	4.22	+2.06	+95.26		
D5	2.87	4.91	+2.03	+70.71		
D6	3.85	5.93	+2.08	+54.12		
D7	5.13	7.61	+2.48	+48.36		
D8	7.63	10.67	+3.04	+39.82		
D9	11.90	15.25	+3.35	+28.12		
D10	63.70	44.87	-18.83	-29.56		
Top 5%	53.75	32.44	-21.31	-39.65		
Top 1%	33.37	13.08	-20.28	-60.79		
Gini	0.728	0.553	-0.175	-24,01		
95% CI*	[0.708; 0.750]	[0.542; 0.566]				

Notes: *Bias-corrected bootstrap confidence intervals [min. Gini; max. Gini]

Sources: see Appendix 5.3 and 5.4

Let us now turn to a first review of the evolution of regional inequality among the fiscal population. In the early fourteenth century, the distribution of wealth was rather similar in the County of Flanders and the territory eventually controlled by the Republic of Florence in 1427. The Gini coefficient for the former was equal to 0.728 and slightly higher for the latter, namely 0.743, but the confidence intervals show a large overlap. In both regions, the top decile owned nearly two thirds of all wealth. Only for the lower deciles (D3-4) and the top 1%, some differences can be observed. All in all, the distributions for County and the Republic look very alike. This isn't surprising given that the average wealth per capita (see Chapter Four) and economic activities were also similar. Both regions boosted a densely populated countryside and industrial cities focused on the mass production of cheap textiles for the international market. However, in the following century, the trends diverge significantly. In the County of Flanders, inequality declined markedly (the Gini coefficient declines from 0.728 to 0.553). The evolutions for the elites outlined in the previous section seem to match the changes in the general distribution. The share owned by the elite (D10) took a large hit, especially by those at the very top of the distribution (P100 witnessed a reduction of its share by circa 60%). In absolute terms, the higher deciles below D10 generally profited more than those at the bottom whereas the trend is opposite in relative terms. Remarkably, the gains for the lowest group of the fiscal population seem underwhelming (D1 only witnessed an increase of 24.27%, from a share of 0.43% to 0.53% of the total wealth). One possible explanation is that for this group any increase in income was more likely to be spend on the improvement of their diet and living conditions than on the investment in assets. Additionally or alternatively, the loss of opportunities for unskilled labour in the textile industry may have hampered their abilities to profit from increasing wages.

Overall, the evolution towards greater equality in the County of Flanders after the Black Death seems in line with the trends described in the historiography. In stark contrast, the results for the Republic of Florence no longer correspond to this narrative. The inclusion of the capital in the regional series suggests that disparities were growing rather than declining in the fourteenth century (from a Gini coefficient of 0.743 to 0.824, no overlap between confidence intervals). Again, our data on elite wealth in capitals was representative for the general trend (see 5.1 The rich and powerful). The fortune of the top decile was clearly growing at the detriment of the rest of society. This top was increasingly located in the capital of the Republic. Whereas 48% of the top 5% were Florentine citizens around the year 1300, this figure had increased to a staggering 84% by the fifteenth century. They were highly successful in appropriating an ever-larger share in spite of dwindling profits due to increasing wages. While economic fluctuations may have helped us to explain the evolving differences among the capital elites, it falls short to explain the long-term trend of growing disparities with other social classes. Given that wage labour accounts for a larger part of the income for

the last-mentioned group, the second half of the fourteenth century should have been more favourable to them. Subsequently, we must turn to other variables for an explanation. In the previous chapter, we have pointed out how the many military campaigns and the related fiscal system siphoned an increasingly larger portion of the regional wealth towards the capital. The data in Table 5.4 suggests that these profits only seem to have benefitted the top of Florentine society. In the Republic, the rise of the fiscal state and its subsequent impact on inequality thus seem to have developed from an earlier date than observed elsewhere in Europe.

5.3 Revealing the Golden Age. Winners and losers of the Late Middle Ages

Although inequality trends are most telling, we should not jump too quickly to conclusions about the Golden Age for labour. After all, the relative distribution of wealth does not inform us about the absolute level. Some may have owned less of the total but still possessed more assets than before if the stock of wealth had increased more. Our estimates for the Republic of Florence and the County of Flanders revealed a significant growth in the average wealth per capita, so we shouldn't already rule out a positive evolution for the lower classes in the first-mentioned region. For Flanders, we still don't know how extensive the gains really were. In this last section, we therefore zoom in on the average levels of wealth per capita for every decile and finally reveal the real winners and losers of the Late Middle Ages. To this end, we convert the decile shares of our fictious distributions back to their absolute figures. The results are reported in Table 5.5. We have also calculated how many daily consumer baskets could be bought if a person decided to sell off all his assets at once.[584] In other words, it represents the number of days and years someone could survive when suddenly faced with no income (excluding the cost of housing, see Chapter One). The data is based on the average cost of such a basket in the four decades following our benchmark year. The timespan was chosen to remedy irregular short-term fluctuations and better fits the concept of financial reserves, which are normally utilised over a longer period. The periods between 1300 and 1340 as well as between 1400 and 1440 cover all the years in which the fiscal registers of our sample communities were conducted.[585] Shorter timespans, up to a decade, do not alter the outcome significantly and longer timespans would include the sudden distortion by the Black Death for our first benchmark in the early fourteenth century.[586]

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[584] For Flanders, the prices are based on Appendix 1.5. For Florence, see Malanima, "When did England overtake Italy?."
[585] The only exceptions are the city and *contado* of San Gimignano, but we don't have any price data for consumer baskets for these years.
[586] For instance, the maximum variation between one, two, three or four decades for fourteenth-century Florence is 3%.

TABLE 5.5 REGIONAL AVERAGE WEALTH PER CAPITA PER DECILE IN FLORENCE AND FLANDERS (1300-1400)

	Avg. wealth per capita (in kg. Silver)		Equivalent daily consumer baskets (in years ; days)	
	c. 1300	c. 1400	c. 1300	c. 1400
A) The Republic of Florence (borders of 1427)				
D1	0.06	0.02	0 ; 73	0 ; 29
D2	0.09	0.06	0 ; 121	0 ; 86
D3	0.14	0.11	0 ; 186	0 ; 157
D4	0.24	0.18	0 ; 312	0 ; 251
D5	0.39	0.29	1 ; 146	1 ; 35
D6	0.54	0.45	1 ; 348	1 ; 265
D7	0.67	0.71	2 ; 142	2 ; 270
D8	1.04	1.14	3 ; 260	4 ; 132
D9	2.14	2.35	7 ; 251	9 ; 1
D10	9.57	15.58	34 ; 121	59 ; 288
Top 5%	14.91	26.14	53 ; 176	100 ; 130
Top 1%	33.95	73.64	121 ; 282	282 ; 243
B) The County of Flanders (excl. Walloon Flanders)				
D1	0.08	0.14	0 ; 71	0 ; 204
D2	0.16	0.62	0 ; 145	2 ; 147
D3	0.28	0.98	0 ; 243	3 ; 290
D4	0.41	1.15	0 ; 361	4 ; 162
D5	0.55	1.33	1 ; 114	5 ; 60
D6	0.73	1.61	1 ; 277	6 ; 88
D7	0.97	2.06	2 ; 126	8 ; 4
D8	1.45	2.89	3 ; 177	11 ; 81
D9	2.26	4.13	5 ; 159	16 ; 15
D10	12.09	12.17	29 ; 37	47 ; 79
Top 5%	20.40	17.60	49 ; 39	68 ; 98
Top 1%	63.33	35.49	152 ; 156	137 ; 247

Sources: Table 5.4, Appendix 1.5

It is worth repeating that Table 5.5 and the subsequent analysis only concerns the fiscal population. As we have discussed in the previous section, we have no good data on the evolving size of the propertyless and the fiscal poor during the fourteenth century. Based on the scarce data for the Republic of Florence (see 5.2 From top to bottom), we are missing a fifth to a third of the population. For the County of Flanders, similar figures can be deducted from the hearth census of 1469. In this source, 24.15% households were recorded as being poor.[587] Accordingly, when we talk about the lowest decile of the fiscal distribution, they represented the third à fourth decile of the total distribution. To avoid any confusion and better understand the socio-economic profile of the households we are discussing, we have assigned categories based on their place in the total population. These categories have no ideological connotation, whatever their similarities to certain historiographic strands, but are simply determined by calculating to what deciles the fiscal households would belong if we add the exempted 20% to 33% back to the distribution and name them per quintile: the fiscal D1-2 then represent the lower class (equivalent of D3-4 in the total population), D3-D5 are the middle class (eq. D5-6), D6-8 the upper middle class (eq. D7-8), and D9-10 pertains to the elites (eq. D9-10). Below, whenever we refer to deciles it always concerns the fiscal distribution.

Apparently, the increase in the average wealth per capita after the Black Death only partially offset the impact of increasing inequality in the Republic of Florence. A declining trend is still visible for the majority of the fiscal population (D1-6) between the fourteenth and fifteenth century, but some minor gains are now recorded outside the top fiscal decile (D7-9). The observation may help to solve the seeming contradiction between the general rise in inequality we described in the previous section and the proliferation of consumer goods in probate inventories attested by historians of the Renaissance material culture, given that these inventories mainly pertain to members of the upper middle classes.[588] Our data does reveal that D7-9 experienced an average increase of 8.78% after the Black Death, leaving some room for the purchase of non-essential goods. However, it seems that Richard Goldthwaite was right to attribute the main impetus for the Italian Renaissance to the accumulation of wealth by the elites.[589] In the Republic of Florence, the top 1% was the clear winner. The super rich

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[587] Blockmans and Prevenier, "Poverty in Flanders and Brabant from the Fourteenth to the Mid-Sixteenth Century: Sources and Problems," 33-39; Alfani Guido, Ammannati Francesco, and Ryckbosch Wouter, "Poverty in early modern Europe: New approaches to old problems," in *EHES Working Papers* (European Historical Economics Society (EHES), 2022).

[588] See for example Paula Hohfi Erichsen, *Artisans, Objects, and Everyday Life in Renaissance Italy. The Material Culture of the Middle Class* (Amsterdam: Amsterdam University Press, 2020).

[589] Goldthwaite, *Wealth and the Demand for Art in Italy, 1300-1600.*

managed to more than double its wealth over the course of a century (from an average of 33.95 kg. silver per capita to 73.64 kg.) and thereby created the necessary economic preconditions for the changing attitudes towards arts and consumption. The increasing splendour of elite palaces stood in stark contrast to the deteriorating position of the bulk of the regional population. At the bottom of the fiscal population, financial assets were only sufficient to overcome a single month of no income (down from circa two months and half). A fine line separated them from falling into fiscal poverty. Disease or unemployment could easily wipe out what little surplus they had. The regional middle classes (D3-5) were better off, still owning assets worth between half a year and a year of consumer baskets, but still faced significant losses during the fourteenth century (on average, they lost 24.23% of their wealth).

It is doubtful that most Florentine households would have considered the period a golden age. It is probably no coincidence that we find so much evidence of indebtedness among the lower classes in the second half of the fourteenth century. For example, eighty workers had their goods confiscated each year in the city of Florence in the 1380's due to their failure of paying their debts.[590] In the *catasto* of 1427, no less than 78.55% of the propertyless declared debts for an average of 20.20 florins or 0.75 kg. of silver per person, the equivalent of the taxable net worth of someone in D7.[591] As we have stated several times before, the fiscal regime of the Republic installed and controlled by the Florentine elites seems the most likely explanation for this trend. Despite higher wages and more inherited wealth per person, the increasing tax pressure probably wiped out any gains for the lower classes. Indeed, several contemporary sources single out the fiscal system as being problematic. An appeal of the priors in 1369 warns of an "uprising if these forced loans and special levies are not reduced, for there is great privation here."[592] Their words proved prophetic as the famous Ciompi Revolt broke out ten years later. One of the main grievances of the workers and artisans was directed at the fiscal regime of the forced loans.[593] They demanded the end of interest payments on the public debt and the abolishment of the *prestanze* in favour of the older

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[590] Charles-Marie de La Roncière, "Pauvres et pauvreté à Florence au 14e siècle ed. M. Mollat (Paris, 1974), ," in *Études sur l'histoire de la pauvreté (Moyen Age–XVIe siècle)*, ed. Michel Mollat (Paris: Publications de la Sorbonne, 1974); Najemy, *A History of Florence, 1200 - 1575*, 157-60.

[591] The propertyless are chosen as an example because there is no risk of distortion by the deductions made for the residence. Calculations based on Herlihy and Klapisch-Zuber, "Online Catasto of 1427."

[592] Quoted in Najemy, *A History of Florence, 1200 - 1575*, 160.

[593] For a more comprehensive discussion of the causes and the course of the revolution, see for example Franco Franceschi, *Oltre il "Tumulto": i lavoratori fiorentini dell'Arte della lana fra Tre e Quattrocento* (Firenze: L.S. Olschki, 1993); Jonathan Schoots et al., "Conflict and revolt in the name of unity: Florentine factions in the Consulte e Pratiche on the cusp of the Ciompi Revolt," *Poetics* 78 (2020).

system of *estimi*. Clearly, the insurrectionist understood how disadvantageous the fiscal system installed in the 1340's was for them, continuously transferring wealth from the bottom to the top of society.[594] With the downfall of this last popular regime in 1382 and the subsequent re-institution of elite power, especially under the Medici family, their complaints were muted and the institutions that only benefited a select group at the top of society were firmly enshrined in Florentine society. Accordingly, scholars have observed a strong increase in wealth inequality during the rest of the premodern period.[595]

Aside from a clear social distinction, the geographic differences outlined in the previous chapter still apply here. As we have seen, the average wealth per capita almost halved over the course of the fourteenth century. The pauperisation of the countryside is especially evident for the lower classes who lost about three fourths of their assets (on average, -75.96% for D1-2). In addition to the increasing tax pressure on the countryside, especially the *contado*, this trend is probably connected to the rise of urban landownership in this period. With the spread of the *mezzadria* system (see 4.2 All for one), households were able to survive in the countryside despite owning no or small plots of land. For the lessee, sharecropping required less capital to start up an agricultural enterprise. Loans could be provided by the lessor to acquire the necessary equipment and overcome the difficult periods between harvests.[596] However, these advantages came at a cost: in contrast to landowning or long-term leasing farmers, there was no guarantee that sharecroppers could benefit from their hard work in improving the state of the land, let alone pass it on to their children. Contracts covered only a fixed, short period, usually one year, albeit they were regularly renewed. *Mezzadria* therefore prevented the usual accumulation of wealth over different generations and instead transferred half of the profits to predominantly urban landowners. Indeed, in the cities, the scope for a Golden Age and, by extension, a Renaissance material culture was wider. Some limited gains can be recorded for the upper middle classes of the secondary towns: here, D6-8 witnessed an average increase of +26.24%. Contrary to the regional trends, the average wealth per capita of the urban elites remained relatively stable (-1.81% compared to the first benchmark, see Appendix 5.3). Subsequently, most of them were no longer part of the absolute top in the Republic. As we have seen, only 16% of the regional top 5% lived outside the city of Florence in 1427 (see 5.2 From top to bottom). Either the most prominent families

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[594] Najemy, *A History of Florence, 1200 - 1575*, 161-66.

[595] Alfani and Ammannati, "Long-term trends."

[596] Another often-cited advantage of sharecropping involves the reduction in risks as they are shared among the lessor and lessee. However, an analysis of the management of 1,504 plots in 1427 doesn't support the idea that risk aversion was a determining variable for farmers in the Republic of Florence. Ackerberg and Botticini, "The Choice of Agrarian Contracts in Early Renaissance Tuscany: Risk Sharing, Moral Hazard, or Capital Market Imperfections?."

had moved towards the capital after the conquest of their town or their wealth had (gradually) been transferred to the centre through confiscation and taxation. By the same token, gains were most outspoken in the city of Florence. All those with taxable assets generally owned more wealth by 1427. As a rule, the fortune held by a fiscal quintile in the capital resembled that of one quintile higher in the secondary cities and even two quintiles higher in the countryside. For instance, with an average wealth of 2.43 kg. silver per capita, the fifth Florentine decile would have belonged to the upper middle classes in city of San Gimignano (D8) or to the elites in rural Poggibonsi (P98). In this context, the lure of the capital must have been great. The promise of richness may explain why so many households migrated from the secondary cities and the countryside to Florence in the second half of the fourteenth and the early fifteenth century.[597] As a result, the settlement patterns that crystalised in the Republic after the Black Death closely reflected differences in wealth. According to the decomposition of the Theil index, the inequalities between communities more than doubled between our two benchmarks. Whereas between-differences explained circa one fifth of the total inequality in the Republic around 1300, they account for almost half of the inequalities around 1400 (from 20.09% to 44.10% of the total Theil index, see Table 5.6).

Looking at the early fourteenth-century County of Flanders, the distribution of wealth expressed in consumer baskets looks almost identical to those of the Republic of Florence. It confirms once again the very similar starting position of both regions. After the Black Death, the picture has completely changed. In Flanders, the Golden Age for the masses shines brightly. Except for the top 5%, every single percentile witnessed an increase in prosperity. On average, the wealth per capita more than doubled for all deciles (on average, +134.61%). For D2-3, the gains are especially impressive (respectively +276.45% and +253.46%) and are significant higher than the increases we observed in the reconstructed wage series: the average real wage for skilled and unskilled workers rose only by one fourth to a third between the periods of 1300-1349 and 1350-1399 (see Appendix 1.6). Even when we compare the worst decades with the exceptionally high rewards for labour in the last decade of the fourteenth

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[597] The declining population trend between 1348 and 1427 was more outspoken outside the capital, especially in the *contado*. The city of Florence was one of the few communities that displayed a significant recovery of its population between the Black Death and the major plague wave of 1400. The number of migrants in the *catasto* of 1427 was three times higher in the capital than in the next city (Pisa) and eleven times higher than in the third most attractive city (Pistoia). Herlihy and Klapisch-Zuber, *Tuscans and their families*, 60-78, 109-15; Cohn, *Creating the Florentine State: Peasants and Rebellion, 1348–1434*, 91-113.

TABLE 5.6 DECOMPOSITION OF INEQUALITY BY THEIL INDEX FOR TYPES OF COMMUNITIES

	Florence		Flanders	
	c. 1300	*c. 1400*	*c. 1300*	*c. 1400*
A) Towns (according to average wealth per capita)				
High: Florence, Ypres, Bruges	0.4868	0.7737	0.7961	0.0830
Average: S. Gimignano, Nieuwpoort, Kortrijk	0.1326	0.1067	0.1439	0.1684
Low: Prato, Oostende	0.0445	0.0292	n/a	0.0120
B) Countryside				
Contado or Coastal Flanders	0.1227	0.0813	0.4228	0.1926
Distretto or Inland Flanders	0.2408	0.0410		0.0732
Within-community	1.0274	1.0320	1.3628	0.5291
(% Contribution to total)	79.91%	55.90%	91.16%	82.59%
Between-community	0.2582	0.8142	0.1322	0.1115
(% Contribution to total)	20.09%	44.10%	8.84%	17.41%
Total	1.2856	1.8462	1.4950	0.6406

Sources: Appendix 5.3 and 5.4

century, the increase in income is still lower albeit more similar to that of the average increase per decile (+99.15% for unskilled wages and +95.51% for skilled wages). There are three interconnected explanations as to why the positive evolution of taxable wealth would have been more pronounced than that of income in this period. First, the mass mortality related to the recurrent plague waves of the later fourteenth century drove up the number and extent of inheritances per person. With mortality rates between a fifth to half of the population per outbreak, the amount of assets per inhabitant would increase by roughly the same degree as the ownership of most of them was transferable (i.e. the inheritance effect), the only notable exception being life annuities. Naturally, this sudden abundance would drive the prices of these assets downward in accordance with the rules of supply and demand, but certainly not to the point of no financial gain.[598] The average wealth per capita would thus not reflect mortality rates perfectly. Moreover, lower classes would profit less given that the extent of their inheritable wealth was more limited compared to richer classes, but, as we have just established, the increase was most outspoken for the second and third decile. A second reason

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[598] Harry A. Miskimin, "Monetary Movements and Market Structure. Forces for Contraction in Fourteenth-and Fifteenth-Century England," *The Journal of Economic History* 24, no. 4 (1964); Anthony Edo and Jacques Melitz, "Wealth and shifting demand pressures on the price level in England after the Black Death," *Cliometrica* (2022).

may help to solve this issue. Because prices of assets fell and wage income concurrently rose, investments became accessible for a larger share of the population. This is of course under the condition that expenses remained relatively stable, unlike the rising fiscal pressure experienced by Florentine households. Before the Black Death, the quotes of the lower classes were probably based on their income in combination with the few movable goods of value they owned, such as silver or tin objects, which are easy to hide. When people could suddenly afford a house or a plot of land, their officially recorded taxable wealth must have skyrocketed. Third, wealth is cumulative over generations whereas income is not. If the first generation profited from higher wage incomes after the Black Death and purchased a plot of land, the next generation could not only count on similar wage levels, but also on (a part of) that plot of land to build his own fortune. This is especially important when demographic growth was low, like in the fourteenth and fifteenth century, because wealth had to redistributed among fewer kin.[599]

As the above processes probably played out during the decades after the Black Death, most households in the County held a sizeable amount of assets by 1400. If we consider an average wealth owned per capita above the equivalent of one annual consumer basket as a hypothetical threshold for those that were able to comfortably spend their surplus income on consumer and luxury goods, the extent of the domestic demand for this type of goods was much greater in the County compared to the Republic of Florence. Whereas only the upper middle classes and elite meet this criterion in the latter polity, the middle classes of the former also owned the necessary financial means. The observation might explain why we see such a strong development of regional markets for products like medium-quality textiles, beer, paintings, etc. in late medieval Flanders (see Chapter 4.2 One for all). Even though lower classes were not the principal impetus for this fundamental shift in economic activities, this doesn't mean that they did not participate in this new material culture. Probate inventories of confiscated goods among poorer households in Bruges reveal that they likewise invested in certain fashionable items, such as clothing, albeit often in fewer quantities and in the form of cheaper imitations.[600] A cultural shift in the way people perceived and evaluated materials must have taken place at the same time. This was however impossible without the necessary economic preconditions. Consumers are unlikely to follow fashion cycles if they cannot afford their basic commodities first. Table 5.5 reveals that in medieval Flanders even D1 held

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[599] Piketty, *Capital in the Twenty-First Century*, chapter 11.

[600] Peter Stabel, "Unlikely followers of fashion? Dressing the poor in late medieval Bruges," in *La moda come motore economico: innovazione di processo e prodotto, nuove strategie commerciali, comportamento dei consumatori / Fashion as an economic engine: process and product innovation, commercial strategies, consumer behavior*, ed. Giampiero Nigro, Datini Studies in Economic History (Firenze: Firenze University Press, 2022).

enough reserves to purchase some none-essential goods (minimum average wealth per capita worth more than half an annual basket). Such a behaviour would have been far riskier for the lower classes in the Republic of Florence, who could only overcome a maximum of three months without income if they sold all their assets. In this regard, it was probably no coincidence that fifteenth-century writers from all over Europe often described the Southern Low Countries as an exceptionally rich and lavish region. Christine de Pisan wrote that "Flanders is the most noble, rich, and great in Christianity", Jean Mollinet praised the County for being a "worldly paradise", and the well-travelled Philippe de Commines likewise spoke of the "land of promise" for he hadn't witnessed any other region "so abundant in wealth."[601] Even in the works of those that did not seek the favour of the Burgundian rulers we find similar references. For example, Gilles le Bouvier, criticised the Flemish for being "great consumers of flesh, fish, milk, and butter."[602] Analogous comments about the vices connected to the enormous amounts of wealth can be found in the accounts of the Castilian Pedro Tafur, the Nurembergian Hieronymus Müntzer, or the Venetian Lodovico Guicciardini, himself no stranger to massive urban wealth. By the sixteenth century, the saying "No hay más Flandes" (nothing above or better than Flanders) became common in the Spanish kingdoms.[603]

In comparison to the Republic of Florence, the geographical differences in the average wealth per capita were less outspoken (see Chapter 4.2 One for all). Since inequalities within communities were also relatively similar across the County (see Table 5.6), differences between the wealth of their deciles were limited. Obviously, some variation can be observed in accordance with the level of urbanisation. For instance, the ratio between the middle classes of Bruges, Kortrijk, and Oostende was roughly 3:1:0.7 in the fifteenth century (see Appendix 5.4). Yet, according to the Theil index, these variations only account for 17.41% of the total inequality at that time. For Flanders, it is difficult to retrace the evolution during the Late Middle Ages because our sample of towns varies from one benchmark to another (see Chapter 5.2 From top to bottom). Nevertheless, the figures in Table 5.6 suggest that the absolute differences between communities decreased somewhat over time (from an index of 0.1322 to 0.1115), which is consistent with the economic growth observed for many

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[601] Quoted in Van Uytven, "Splendour or wealth," 101; Arnade, *Realms of Ritual: Burgundian Ceremony and Civic Life in Late Medieval Ghent*, 34.

[602] *Realms of Ritual: Burgundian Ceremony and Civic Life in Late Medieval Ghent*, 34.

[603] Joey De Keyser, "De visie van vreemdelingen op de Zuidelijke Nederlanden in de late middeleeuwen en de renaissance" (Licentiaatsverhandeling, Universiteit Gent, 2007), 118-30. The saying also became the title of a seventeenth-century song. Mariano Lambea and Lola Josa, "Cancionero poético-musical de Verdú," (2010).

secondary cities and small towns.[604] At the same time, within-community inequality seems to have declined more steeply (from 1.3628 to 0.5291). Together, the two trends imply that a fundamental change in the socio-economic composition of the population took place across the entire County of Flanders. As we have seen in Chapter Two, there is indeed some evidence for such a transformation. According to Peter Stabel, a sizeable urban middling group started to emerge in the city of Bruges from the beginning of the fourteenth century. Occupational data reveals that while the number of textile workers continuously declined, the number of craftsmen producing consumer goods increased rapidly.[605] Our own compilation of militia lists shows that the relative importance of the former group had fallen from 55.77% of the total in 1297 to 16.94% in 1411. Over the same period, trades related to fashionable products, such as hatters or tailors, increased by half and those related to durables, such as copper smiths, increased by sixfold. Producers of luxury articles did not have their own regiment in the militia list of 1297 but by the fifteenth century they represented 5.19% of the total (See Appendix 2.5). The tax data for the Flemish metropoles suggests that the lower to the upper middle classes saw their average wealth quadruple in the wake of these economic changes (from 1.01 kg. silver for D1-8 in Ypres in 1326 to 4.08 kg. in Bruges in 1394-96).

Stabel argues that Burges was just one of the many Flemish towns to have witnessed an evolution towards a society characterised by strong and wealthy middle classes because reconversions of the urban industry, in which entrepreneurial craftsmen rather than merchant elites took centre stage, are found across the entire urban spectrum. Our fifteenth-century wealth figures for D3-5 in secondary cities and small towns confirm this idea as they owned on average one kilogram of silver per capita or the equivalent of about two years and half in consumer baskets (an increase of circa 25% compared to the first benchmark). But there is no reason to stop at the city walls. Similar levels of wealth could be found among the middle class of the rural villages in Inland Flanders and among the upper middle class of Coastal Flanders (respectively 1.18 and 1.60 kg. silver per capita on average). Seeing how more than two thirds of the population lived in the countryside and how most villages were located within a maximum of ten à twenty kilometres to the nearest town, the potential for consumers of fashionable or luxury goods must have been enormous. In this perspective, the increasing importance, both demographically and economically, of secondary cities and small towns in this period is probably connected to this domestic demand.

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[604] Direct comparisons between the Theil indices are facilitated as all distributions of table 5.6 contain the same number of observations (N=10,000) and a deflated measure of wealth.
[605] Stabel, *A Capital of Fashion. Guilds and Economic Change in Late Medieval Bruges*, 128-60.

Rural households were not only potential consumers but also potential producers of none-essential goods. In some parts of Inland Flanders, the linen industry already emerged as an important commercial activity in the last quarter of the fourteenth century. The cultivation of flax became widespread and records of heriot taxes levied by the Count of Flanders contain multiple looms, which demonstrates that farmers also processed their crops rather than just selling the raw materials to urban entrepreneurs. Whereas linen was imported from Germany during much of the century, it was now exported to international markets, such as London, where Flemish linen represented 29% of the total value of imported linen in 1390.[606] As the weaving of flax happened after all agricultural activities, some households in Inland Flanders sacrificed part of their leisure in exchange for higher incomes. Why did they choose to do so? The timing of this evolution has puzzled multiple scholars. On the one hand, it predates the crisis of the Ghent Revolt (1379-85), which ravaged the countryside and may have pushed rural households to find additional sources of income. On the other hand, it is too late to be attributed to the crisis of the traditional woollen industry, which may have forced the transition from one cash crop, namely dye stuff such as madder, to another, namely flax.[607] Alternatively, fluctuations in prices and wages also fall short of an explanation. Major harvest failures of traditional crops, especially rye in this area of Flanders, were rare in this period. The last quarter stands out as the one with the most stable grain prices of the fourteenth century, greatly increasing the predictability of income.[608] The peak in real wages we observed for this period (see Chapter One) did not constitute a rising cost for most of the households as they were able to work the land by themselves. They did not need to hire additional, expensive work forces. In fact, casual labour on the few large farms in the neighbourhood probably provided them with higher incomes albeit the number of days worked was generally limited. If rural households were not forced to take on proto-industrial activities to make ends meet, the only explanation left is that they chose to do so for their own gain. In this regard, the economic behaviour of some households in Inland Flanders portrays striking similarities with those described for the seventeenth- and eighteenth-century Industrious Revolution by Jan de Vries.[609] Of course, the evidence is indirect. We have unfortunately no probate inventories to check what these households purchased with their increased wealth or which social classes actually participated in proto-industrial activities. But it does corroborate our earlier findings of industriousness among the building craftsmen in the hinterland of Bruges (see Chapter Two).

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[606]Van Uytven, "Een statistische bijdrage."

[607] Sabbe, *De Belgische vlasnijverheid.*, 1, 71-78, 141-42; Thoen, "Landbouwekonomie en bevolking," 980-87.

[608] Espeel, "Prices and crises," 114-41.

[609] Vries, *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present*.

For the Republic of Florence, there is no evidence that a similar change in the socio-economic composition of the population took place on the same scale. Here, within-community inequality remained relatively stable vis-à-vis the sharply increasing differences between communities (cfr. supra). However, this does not mean that households had no opportunities to better their living conditions in this region. According to John Padgett, social mobility increased in the city of Florence during the second half of the fourteenth century, especially after the Ciompi Revolt, before it returned to its lower pre-plague levels in the fifteenth century. Among others, this mobility was visible in the declining persistence of familial taxable wealth over multiple generations. Between 1325 and 1480, only about half of the top 25% families were able to retain their relative position, measured in quartiles, between tax registers sampled every twenty-five years.[610] In a similar vein, the ERC-project SMITE is currently mapping household mobility in the Florentine *contado* and the city of Prato. Preliminary data suggests that here too the distribution of wealth was less stable in the period after the Black Death. The share of tracked households that moved from one fiscal quartile to another, either up or down, seem to have increased by roughly one fifth to a third in the first decade after the outbreak.[611]

For the Southern Low Countries, we do not have comparable, aggregated data on social mobility yet.[612] What we do know is the mobility of one specific group. In Chapter Three, we retraced the evolving fiscal position of building wage labourers. Sources for the County of Flanders were patchy, forcing us to combine fiscal registers from different communities to build a time series. Moreover, no records were preserved for the period before the Black Death. In contrast, taxes were available for the city of Mons from the end of the thirteenth century until 1365, allowing us to assess the impact of the Golden Age on the relative position of wage labourers in the distribution. In Table 5.7, we have converted this data for the registers of 1279-81 and 1365, the most comprehensive wealth taxes for both benchmark periods, into absolute figures based on our estimates of total wealth for Mons in 1279-81 and 1444, calculated in the previous chapter. Obviously, the time between the two types of sources for the benchmark year of 1400 is significant and may distort the picture. Unfortunately, there is no fiscal register for the city of Mons closer to the general levy of 1444.

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[610] Padgett, "Open Elite? Social Mobility, Marriage, and Family in Florence, 1282-1494," 371-73.

[611] G. Alfani, "Social mobility across Italy and Europe, 1300-1800: an overview," in *SMITE conference: social mobility in preindustrial Europe* (Bocconi University, Milan2022).

[612] Currently, the earliest records being studied by the SMITE project for the Southern Low Countries date from the middle of the sixteenth century.

TABLE 5.7 AVERAGE WEALTH OF BUILDING WAGE LABOURERS IN THE CITY OF MONS

| | Percentile | | Avg. Wealth (kg. silver) | | Ratio |
	c. 1300	c. 1400	c. 1300	c. 1400	(1400/1300)
A) All fiscal households					
Lower limit Q2	26	26	0.13	0.83	6.34
Median	50	50	0.30	1.17	3.85
Upper limit Q3	75	75	1.27	2.15	1.70
B) Unskilled building wage labourers					
Lower limit Q2	13	18	0.09	0.64	7.40
Median	23	43	0.11	1.10	9.68
Upper limit Q3	29	43	0.17	1.10	6.35
Average	21	35	0.13	1.17	8.99
C) Skilled building wage labourers					
Lower limit Q2	23	43	0.11	1.10	9.68
Median	29	43	0.17	1.10	6.35
Upper limit Q3	39	63	0.23	1.56	6.67
Average	36	54	0.22	1.17	5.40

Sources: Figure 3.2; Table 4.3 ; Piérard, *Les Plus Anciens Comptes*: 517-543, 563-569; Arnould, "Les Plus Ancien Rôles."; Heupgen, "Le Rôle De La Taille.": 41-95

Nevertheless, if we assume a simple linear relationship between our two estimates of total wealth and divide the result for 1365 by the number of contributing inhabitants, the average wealth per capita is rather similar (2.23 kg. silver versus 2.10 kg. reported in Table 4.3).[613] It suggests that the mid-fifteenth century figure is probably representative for the order of magnitude of wealth gains during the period after the Black Death. Accordingly, we have applied the estimate of 1444 to the relative share of building wage labourers in Table 5.7 and confronted it with the evolution for all inhabitants belonging to the lower to upper middle classes of Mons (Q2-Q3). Just as in Chapter Three, the discrepancy between the labourers and general population is evident. Where many historians often assume that skilled wage workers are representative for the middle classes in society, Table 5.7 reveals that their absolute increase in wealth was far greater than the average household. The skilled labourers in Mons witnessed gains that were 40.26% to 151.43% higher than the average household

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[613] Population figures were calculated on an average family size of 4.5 members per household, excluding widows and single women, such as beguines, for which we used respectively a ratio of 3.5 and 1. Subsequently, the number of inhabitants in Mons in 1365 can be set at 6,219. The linear relationship between the total wealth of 1280 and 1444 suggests a total stock of 13,898 kg. silver in 1365.

enjoyed between the fourteenth and fifteenth century. Likewise, unskilled building workers are not representative for the lower or lower classes. For example, the increase for a median household from this group was 52.68% higher than the one experienced by a typical family of the 25th percentile.

While a direct link between income and wealth is difficult to make (cfr. supra), the observations may serve once again as a warning against taking wage series as a proxy for the living standards of the entire population. Their increase in income was probably less outspoken though still significant in the light of the development of the domestic market for consumer goods and increased inheritances. But if wage labour proved so much more profitable, why didn't more households switch to this type of work? We don't have any firm evidence but may formulate some hypotheses. They are in many respects similar to our criticism about labour market arbitrage during the Late Middle Ages (see Chapter 2.1 Pick a number). Economically, daily wage labour always carries a certain risk of unemployment. In a time of unpredictable food prices, self-employment or annual service contracts would have been regarded more positively. Faced with a crisis, daily labourers were likely the first to be sacked by employers. In the eyes of many, the advantage of earning more income during times when the general level of wealth was already high enough to afford a comfortable living standard, probably didn't outweigh the disadvantage of a severe reduction in income in the few years of economic turmoil. Moreover, most of the new consumer goods were produced by independent artisans, like tailors or smiths. As such, the demand for skilled wage labour was probably limited. Socially, the prestige of self-employment was deemed higher than short- or long-term service, which was usually associated with youth or single women. In an urban environment dominated by guild institutions, the entrepreneurial master with his own shop was considered the pillar stone of society. The lazy wage labourer who preferred and could prefer leisure over hard work in this period was the antithesis to this developing bourgeoisie identity.[614] In the countryside, the lesser status of service was still closely related to the legal concept of serfdom even though very few people in the County of Flanders were unfree by the fourteenth century. In Inland Flanders, the preference for self-employment is clear in the survival of smallholding and concurrent development of proto-industrial activities during the premodern period despite growing demographic pressure and the presence of urban markets. Wage labour was often personal and involved the exchange of services and use of goods, such as a plough, instead of a mere monetary stipulation. Most of

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[614] Blondé, Geens, and Stabel, "The World of Goods. An Essay about Leisure and a Medieval 'Industrious Revolution'."

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these workers were still peasants, owning a small plot of land.[615] It was only in much later that we see the emergence of a true landless labour force, when the economic conditions had severely worsened.

5.4 Conclusions

The analysis of the personal distribution of fiscal wealth has put our understanding of the Golden Age for labour into a new perspective. While many of the universal trends and explanations proposed by historiography could be found in one or the other social group or community, none of them were able to capture all the varying and complex evolutions we observed. At the top of the pyramid, the experience of the elite differed significantly between the three capitals. Whereas inequality among the rich increased in the Republic of Florence and probably in the County of Hainaut, it fell drastically in the County of Flanders after the Black Death. Methodologically, the focus on this group allowed us to retrace evolutions at a more regular interval thanks to the greater availability of sources and the more limited time required for data input compared to the traditional analysis of comprehensive tax registers. Subsequently, the particular dynamics of this group became clear. The disruption of international trade, one of the most lucrative sources of income, proved a far better explanation of the medium-term trends than the usual suspects, namely the occurrences of mass mortality and warfare. Shifting our attention towards the share of regional wealth owned by the elites, revealed that they could also serve as a proxy for the general evolution of inequality. Thanks to the reconstruction of fictious distributions for the County of Flanders and the Republic of Florence in two benchmark periods, we were able to flesh out the precise changes for each decile.

Although the economy and levels of wealth in the two regions appear very similar at the start of the fourteenth century, they both underwent profound societal changes that would put them on diverging paths. For the medieval Northern and Central Italian communities in general, Bas Van Bavel has described how market elites seemed to have doubled down in the light of changing circumstances, employing their power over economic and political institutions to safeguard their interests. As a result, the once positive impact of those institutions was turned around and became a force of social polarisation and growing wealth

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[615] Bas van Bavel, "The Transition in the Low Countries: Wage Labour as an Indicator of the Rise of Capitalism in the Countryside, 1300–1700," *Past & Present* 195, no. suppl 2 (2007).

inequality.[616] This certainly holds true for the elites in the Republic of Florence. Internally, they suppressed any attempts at reinstating popular governments. By the 1430's, the age of guild republicanism was definitely over and elite patronage dominated the political landscape. To the outside, they reacted to military threats by conquering nearby towns and villages, thereby quintupling the territory under their control. These costly campaigns had to be financed, putting an increasing pressure on the public debt. The introduction of the *Monte Comune* and the system of the forced loans did not only provide (some of) the necessary funds, but also functioned as a way to transfer wealth from the lower half of the society to the top. Higher tax rates outside the capital, especially in the *contado*, further ensured the positive flow towards the urban elites. In addition to the political and fiscal repression, households in the countryside increasingly witnessed economic exploitation through the rapidly spreading system of the *mezzadria*. In the secondary cities, industrial activities that competed with those in the capital were restricted. Unsurprisingly, this extractive regime resulted in rising inequalities. Even when a large share of the population perished in the recurring plague waves, wealth levels seem to have declined for most households. Whatever the increase in inherited wealth or labour income, the Florentine elites apparently managed to claim it for themselves, seeing how their fortune more than doubled. Here, the Golden Age for labour was only golden for those at the top. The splendour of the *palazzi*, filled with artwork by the finest sculptor or painter, must have stood in sharp contrast to the deteriorating position of artisans and labourers, fearing the next round of taxation.

In the County of Flanders, the power of the elite was far more fragmented. Instead of a single urban elite residing in one capital, the precarious balance between the Count, rural nobility, clergy, and prominent citizens of different towns was constantly renegotiated. Inside the cities, the establishment of the guild government had been more successful than in Tuscany. With the political emancipation of the craftsmen also followed his economic emancipation. As the ongoing international textile crisis unfolded, the elite merchants gradually lost their monopoly over the urban industry and chances for entrepreneurial masters opened up. Perhaps first timidly and severely limited in social and geographical scope, this change towards a strong middle class first occurred at the end of the thirteenth century. In this regard, the Black Death may have accelerated an already ongoing process. Inequality decreased and wealth levels across all deciles increased significantly, especially at the lower end and middle of the fiscal distribution. In tandem with a new perception on materiality, this boosted the

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[616] *The Invisible Hand? How Market Economies have Emerged and Declined Since AD 500* (Oxford: Oxford University Press, 2016), 97-144.

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demand for durable and fashionable goods. Regional markets in secondary cities and small towns flourished, with some of them becoming so specialised they could even cater to an international audience. In some parts of the countryside, farmers started to grow and process flax even though we found no evidence of increasing financial pressure. A certain type of industrious revolution seems to have taken place, greatly increasing productivity and wealth levels. This might explain why the County of Flanders did not witness the same radical decline in the size of its economy as Florence did in the fourteenth century. The result was a bright Golden Age for the masses. The Burgundian splendour and the golden fleece of duke Philip the Good was but the tip of an iceberg.

Conclusions
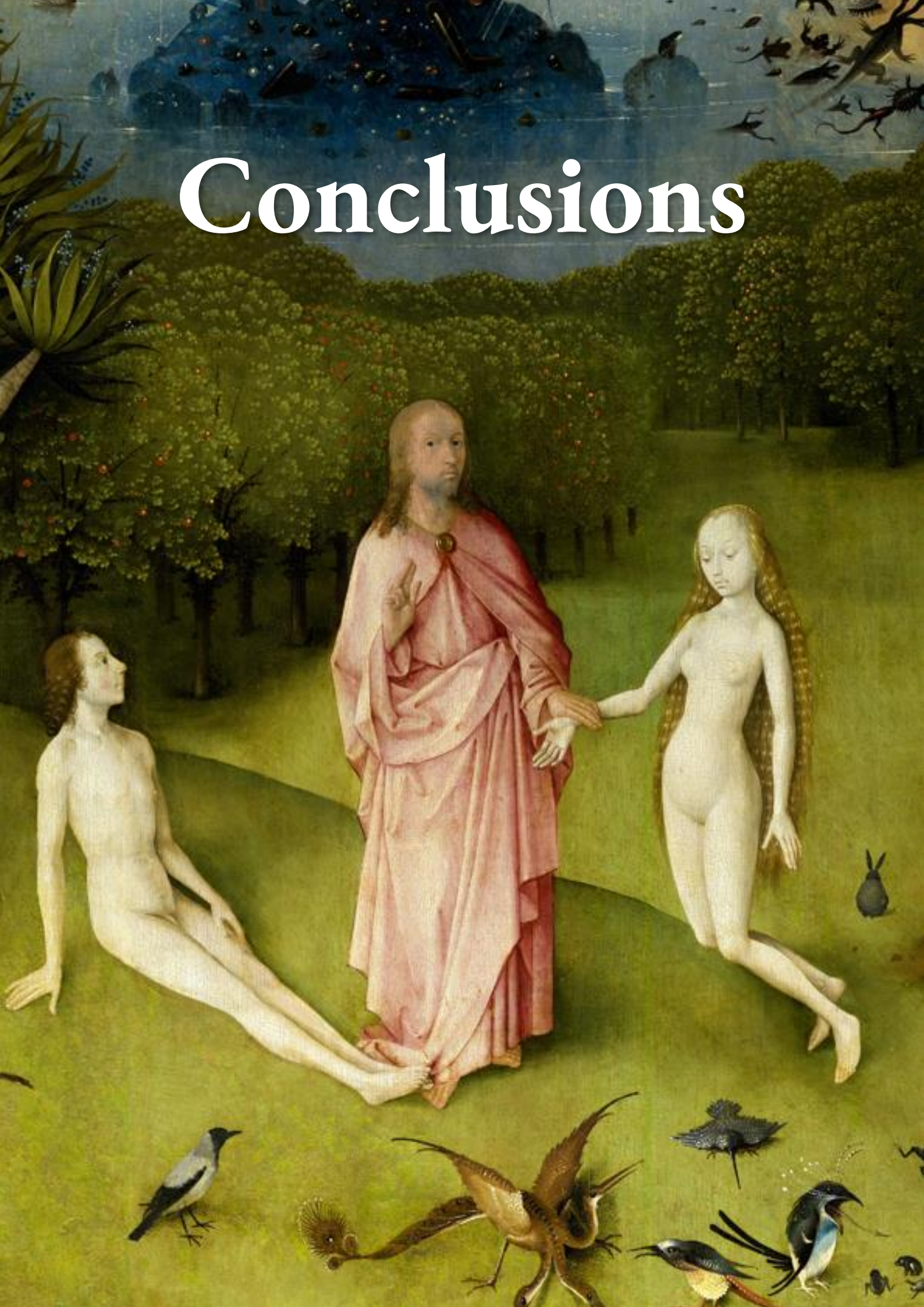
CONCLUSIONS

Sitting on a gold mine

Very few historiographic concepts have withstood the test of time as well as the fifteenth-century Golden Age for labour. From nineteenth-century political economists to present-day historians, scholars have overwhelmingly stressed the positive evolution of European living standards during the century and half after the Black Death. The evidence for these claims has mainly come from the daily remuneration of labourers in construction or agriculture. Long-term real wage series for different communities across Europe suggest that no other time before Industrialisation witnessed such a rapid and universal increase in wages, resulting in unprecedented high levels of prosperity. Remarkably, despite a strong tradition of quantitative economic history and the availability of a large body of medieval accounts, comparable figures for the Low Countries have been lacking for the period before the Black Death, obscuring the magnitude of a potential Golden Age in one of the leading economic regions of that time. Our newly reconstructed series for Flanders and Hainaut revealed that here too the gains for skilled and unskilled construction labourers were significant, with real wages nearly doubling and tripling respectively in the former and latter region between 1348 and 1400. At the same time, several scholars, sometimes the very same ones that composed the aforementioned series, have warned us repeatedly against employing wage data as a proxy for the experience of the late medieval population in general. They have argued that daily remuneration of the male head did not equate to the annual income of households nor was it representative for the bulk of households who relied foremost on self-employment. Yet, without any alternative, equally quantifiable measure, the lure of the daily wages has remained strong and the warnings have largely been ignored. Even the most recent methodological innovations, trying to incorporate labour time and household composition, ultimately fall short of providing us with a robust estimate of income because they are still largely based on the same type of data combined with extensive and often questionable assumptions about fundamental factors such as participations rates, market arbitrage, and consumption. While they rightfully advocate a downward revision of the established real wages, the new series are still characterised by impressive gains during the second half of the fourteenth century, unobserved until at least the middle of the eighteenth century.[617] In a similar vein, the recent surge in studies of premodern wealth hasn't provided us with a new

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[617] See for example, Horrell, Humphries, and Weisdorf, "Family Standards of Living Over the Long Run, England 1280–1850," 16-17.

interpretation of the exceptional late medieval living standards because the focus has been restricted to its relative distribution over time. The observation that almost everywhere in Europe inequality declined sharply after the Black Death, has corroborated the idea of increasing fortunes for the masses of the population in this period even though the number of cases is limited and the link with income or absolute wealth uncertain.[618] As a consequence, the Golden Age for labour still reigns supreme in the historiography today.

Obviously, living standards waxed and waned throughout history as economic conditions continuously evolved. The issue is therefore not the identification of remarkable upswings, but rather the generalisation of the experience of a very specific minority based on flawed data to the entire social stratum, to the entire European continent and the entire late medieval period. This is especially true when real wage series are uncritically adopted to construct grand narratives about living standards both within and outside the field of history, for example its relationship with capitalism or marriage patterns.[619] If we ever want to assess the true extent of the Golden Age and understand why it precisely came about, we need to determine when and where real wages were representative for who. Accordingly, temporal, geographical, and social differences have been central to this thesis. Regarding the first-mentioned type of variation, we have uncovered some important deviations from the trends usually described in historiography. In some parts of the County of Flanders, real wages were already high at the end of the thirteenth century before plummeting during the onset of the Late Medieval Crisis. Based on these levels, here, daily labourers did not witness significant gains after the Black Death, but only enjoyed higher living standards at the very end of the fourteenth century. In contrast, the County of Hainaut and the Republic of Florence conformed much better to the traditional image of a sudden and rapid increase, albeit observations were limited to the capitals of both regions. Likewise, the supposed universal and long-lasting decline in wealth inequality during the second half of the fourteenth century appeared more complex based on the differences among the richest households. In Mons, disparities became more pronounced in this period. In Florence, the share owned by the top 1% remained largely unaffected by the Black Death and rapidly increased in the following years. Only in Bruges, a significant, long-term egalitarian trend could be discerned.

Regarding geography, the comparison between the Southern Low Countries and the Republic of Florence raised important questions about structural differences in the timing of economic growth between Northwestern and Southern Europe, the so-called Little

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[618] Alfani, "Economic Inequality in Preindustrial Times," 16-18.
[619] See for example, Dylan Sullivan and Jason Hickel, "Capitalism and extreme poverty: A global analysis of real wages, human height, and mortality since the long 16th century," *World Development* 161 (2023).

Divergence. Real wage series for building workers in Bruges and Ghent suggested that Flemish labourers enjoyed higher living standards than their Florentine colleagues during the entire Late Middle Ages (on average, unskilled wages were ca. 25% and skilled wages ca. 40% higher between 1310 and 1550). Reconstructions of the average wealth per capita confirmed this idea as figures were more favourable in the County of Flanders for all our benchmark periods (between 27.6% and 29.9% above the level found in the territory controlled by Florence in 1427). Based on this data, one could argue that the Little Divergence emerged from a much earlier date than hitherto proposed. However, we have warned against such an interpretation given the exceptional economic conditions in Flanders during the early fourteenth century compared to the rest of Northwestern Europe. In contrast, the Republic of Florence was but one of several prospering city-states in the medieval Italian peninsula. It is only in the following two centuries that the gap between Flanders and other regions in the Southern Low Countries became less outspoken. Real wage series for Mons and Antwerp caught up with the Flemish regional average by the fifteenth century though never reached the levels found in Bruges or Ghent until well into the early modern period. Based on wealth per capita, households in the County of Hainaut were still lagging by a large margin around 1400, owning on average less than half the assets found among Flemish households. By the middle of the sixteenth century, this difference was reduced to 14.0%. Although we don't have regional figures for the Republic of Florence during that period, the declining trend found in most communities with data after 1427 suggests that the County of Hainaut probably surpassed the last-mentioned city-state in terms of average wealth somewhere between the middle of the fifteenth and the middle of the sixteenth century (average wealth was 8.4% higher in Hainaut in 1569 compared to the levels of Florence in 1427). In this sense, our research agrees with the group of historians that has emphasised this period over the eighteenth century as the structural break between the economies of Northwestern and Southern Europe.[620] At the same time, the early primacy of the County of Flanders casts serious doubts about the connection, made by this group, between the Black Death and the societal transformations that enabled the differential growth paths. As we will discuss below, many of these political and institutional changes already emerged in the County well before the pandemic.

Besides structural differences between regions, we also uncovered many intra-regional variations. In the County of Flanders, building labourers in large cities enjoyed the highest

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[620] Pamuk, "The Black Death and the origins."; Alexandra M. de Pleijt and Jan Luiten van Zanden, "Accounting for the "Little Divergence": What drove economic growth in pre-industrial Europe, 1300–1800?," ibid.20, no. 4 (2016); Fochesato, "Origins of Europe's north-south divide: Population changes, real wages and the 'little divergence' in early modern Europe."

levels of remuneration. Differences among other types of towns were largely absent and differences between these towns and their countryside remained limited. Far more important was the division according to the social-agrosystem. From the last decade of the fourteenth century, wage labour in Coastal Flanders became much more rewarding compared to Inland Flanders (e.g. unskilled wages were on average 35.9% higher in the fifteenth century). Again, reconstructions of the average wealth per capita revealed very similar patterns: households in Ypres and Bruges were probably better off than their peers in other towns, rural households achieved very respectable levels of wealth, and differences between Coastal and Inland Flanders became apparent from 1400 onwards. Overall, differences between communities seem to have declined over time due to the proliferation of secondary cities and towns. Subsequently, both data sets contained only limited geographical variations as opposed to the Republic of Florence. Here, the pauperisation of households in secondary cities and especially in the countryside during the fourteenth century was significant (the average wealth almost halved between 1300 and 1427 in rural communities). In contrast, citizens of Florence witnessed a strong growth. Over the same period, their share in the regional stock of wealth increased from about a quarter to two thirds of the total, far more than what we would expect based on their demographic evolution (from representing 9.6% of the total population to 14.3%). The capital stood lonely at the top in 1427, with wealth levels more than three time greater than the next richest community.

Lastly and perhaps most importantly, we have focused on social differences. Even within the very specific group of construction workers in the towns of Flanders, the experience of the Golden Age varied immensely. At the top, we saw how the relative fiscal position of entrepreneurs hardly changed over the fourteenth and fifteenth century. In contrast, the position of daily labourers was strongly related to the ups and downs of their wages, suggesting that the bulk of the population did not enjoy an equally strong increase in income after the Black Death. The observation may serve once again as a cautionary tale for the representativeness of real wage series. Unfortunately, social differences across gender and age were impossible to discern due to the fragmented evidence on female and children wages. Moving from personal income to household taxable wealth, we reconstructed the absolute levels of wealth per decile at the regional level for the County of Flanders and the Republic of Florence around 1300 and 1400. In the first-mentioned polity, gains between the two benchmarks were widespread and substantial (on average, per capita levels more than doubled). Only the top 5% witnessed a significant reduction of their fortunes. In relative terms, the lower classes profited the most, which pushed inequalities downwards. In Florence, the picture was completely the opposite. Here, only the high middle classes and the elites, foremost the top 1%, recorded a positive evolution over the fourteenth century. This group became increasingly based in the capital of Florence with 84% of the top 5% residing

in this city by 1427. Contrary to the traditional idea of a Golden Age for labour, the working classes were struck by heavy losses (on average, per capita levels decreased by a third). Especially the lower classes, often households of the Florentine *contado*, experienced a detrimental evolution, losing about half of their assets. As a result, wealth disparities increased significantly between 1300 and 1400.

So how do we explain all of the above trends? Traditionally, historians have stressed the transformative power of the Black Death and subsequent plague waves. This is foremost the case in neo-classical and neo-Malthusian frameworks, which explain the Golden Age for labour by the changes in the functional distribution of income caused by mass mortality. The shortages in the workforce greatly enhanced the value of labour. At the same time, the stock of land and money remained relatively unaffected and thus became more abundant per capita, resulting in a devaluation of these assets. Whereas the top of society was usually more invested in the last two factors of production, lower classes mainly depended on labour for their income. Accordingly, living standards for the masses must have increased and economic disparities were poised to decline. This line of thought has led some scholars to single out population movements as the only or main determinant of income and inequality.[621] Naturally, such a narrow explanation runs contrary to the historic record outlined above. If demography was truly the main driver of per capita fortunes, the Republic of Florence should have witnessed the highest gains. Here, population figures fell from more than a million inhabitants around 1300 to slightly more than a quarter of a million in 1427, an astounding loss of about three fourths! In contrast, the number of people in the County of Flanders 'only' declined by a third over the same period. Yet, both in absolute and relative terms, living standards evolved more favourable in this last region. This does not mean that demography and plague did not matter. Events that killed thousands and sometimes even millions of people in a few years can hardly be footnotes in history. It shook societies to their core. From the mid-fourteenth century, death became omnipresent and its impact on the economy must have been very real, even if only measured by the sheer amount of goods produced or the number of inheritances per capita. However, the Black Death and the subsequent plague waves did not strike a blank canvas. Every society had its own set of rules, beliefs, institutions, and power relations that governed the economy. While some of these structures may have been strengthened in the face of demographic collapse, others may have come under pressure and eventually gave way to new constellations. Accordingly, the outcomes of the plague waves were probably as varied as the number of communities. Such a feedback loop between

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[621] Clark, "The long march of history: Farm wages, population, and economic growth, England 1209–1869."; Scheidel, *The Great Leveler*.

crisis and societal structures has been common knowledge in the field of disaster studies for several decades.[622] It is past time we applied its logic to the economy of the Late Middle Ages and move away from any monocausal explanation.

One of the key elements to explain the exceptionally high standards of living for the majority of the Flemish population is the changing attitude towards work, leisure and consumption. Recently, Bruno Blondé, Sam Geens and Peter Stabel have pointed out how such changes were visible in a bourgeoisie literature promoting industriousness, the increasing regulation of time in cities, and the evolving material culture of lower and middle classes, which became increasingly invested in fashionable items.[623] Our analysis of the number of days worked by the carpenters of the water board of Blankenberge revealed how the relationship between income and leisure continuously evolved in favour of the former over the course of the Late Middle Ages. Although higher remuneration generally resulted in fewer days worked, carpenters of the fifteenth century toiled harder than their colleagues of the thirteenth century when controlling for differences in real wages. At the same time, the targeted income of these labourers increased from 2.5 to 4.5 annual consumer baskets. Given that increasing tax burden, changing household composition, or declining capital gains failed to explain this trend, the desire for greater levels of consumption seemed the most plausible explanation. In this sense, the simultaneous proliferation of industries related to the production of fashion from the early fourteenth century in the nearby city of Bruges was probably no coincidence.[624] By the end of the century, the changing mentality had spread across the County judging from the economic successes of similar sectors in secondary cities and towns. Indeed, the fiscal wealth of middle classes in these communities had increased to relatively high levels (1 kg. of silver per capita on average or a fourth higher compared to the first benchmark of 1300), which must have allowed them to spend a significant share of their budget on nonessential goods. Remarkably, in some areas of the countryside, middle classes seem to have possessed a similar number of assets. In the southern part of Inland Flanders and the northern part of Hainaut, certain farmers not only engaged in the consumption of new consumer goods but also in its production. From the last quarter of the fourteenth century on, they started to complement their traditional activities with the cultivation and processing of flax for the market. Again, there is no evidence of increasing expenditures, ongoing crisis, or rapidly declining plot sizes that may have pushed them towards this intensification of household labour, as occurred in later centuries. Taken together, it appears

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[622] Bas van Bavel et al., *Disasters and History. The Vulnerability and Resilience of Past Societies* (Cambridge: Cambridge University Press, 2020).

[623] Blondé, Geens, and Stabel, "The World of Goods. An Essay about Leisure and a Medieval 'Industrious Revolution'."

[624] Stabel, *A Capital of Fashion. Guilds and Economic Change in Late Medieval Bruges*.

that County of Flanders experienced a type of industrious revolution long before the seventeenth-century Consumer Revolution, albeit the evidence is fragmented and we cannot link the observed changes in wealth and income directly to consumption patterns. Changing attitudes were already emerging before the Black Death as certain urban groups enjoyed high levels of wealth, but they likely became more widespread and profound afterwards when more households achieved the necessary economic preconditions to partake in nonessential consumption.

While industriousness may explain why the Golden Age shone so brightly in the County of Flanders, it does not explain why wealth levels largely failed to rise in the late medieval Republic of Florence. There is no reason to believe that Florentine households were inherently lazier than their Flemish counterparts. In fact, many of the above processes also occurred in the Republic. For example, testaments reveal a growing attachment to goods and the consumption of luxury and arts became a hallmark for social prestige.[625] Moreover, estimates of work time based on GDP figures closely resembled the evolution we found among the carpenters of the water board of Blankenberge. But if labourers toiled more hours per year and their daily remuneration was increasing, why wasn't their wealth following suit? The only logical explanation is that their expenses must have increased even more rapidly. Much in line with Bas van Bavel's general assessment of the role of elites in reshaping factor markets in the Italian city-states in this period, we have seen how Florentine elites were responsible for this trend through warfare, fiscality, and economic coercion.[626] During the fourteenth and fifteenth century, the territory of the Republic expanded rapidly, often through military conquest. To this end, the city-state increasingly relied on (foreign) mercenary companies rather than calling its own subjects to arms as it had in previous centuries.[627] High wages for professional soldiers and the sheer number of campaigns put a heavy burden on public expenditures. Consequently, indirect taxes were increased, a public bond market, the *Monte Comune*, was established, and forced loans or *prestanze* were regularly collected. These financial and fiscal measures actively transferred wealth from the bottom to the top of society since the latter were the main creditors of public debt. In a similar vein, the Florentine elite used its political clout to curtail industrial competition. Most importantly in terms of labour opportunities for the lower classes, certain forms of textile production were restricted outside the capital. Economic coercion was also visible in the countryside where the urban rich owned ever larger shares of land. With the spread of

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[625] Cohn, "Renaissance attachment to things: material culture in last wills and testaments."
[626] van Bavel, *The Invisible Hand?*, 97-143.
[627] William Caferro, "The Florentine army in the age of companies of adventure," *Millars* XLIII (2017).

mezzadria, a particular type of short-term sharecropping with strict stipulations, many farmers did not only lose (part of their) access to the land but also lost a lot of their freedom to pursue economic opportunities.

Whereas the Florentine elites successfully laid claim to the surpluses created by the demographic shocks of plague, elites in the Southern Low Countries were unable to follow their example. As Bruno Blondé, Marc Boone, and Anne-Laure Van Bruaene have stressed, this region was characterised by a decentralised constellation of power and a decentralised urban network.[628] Contrary to the Republic of Florence, the city did not coincide with the state. There was no economic or demographic primacy of a single capital where most elites were situated. Instead, political power was fragmented across social groups and space. At the level of the polity, the competition between rural nobility, clergy, citizens, and princes resulted in ever shifting alliances, preventing that a single group could dominate all others. In cities, the power of patrician families diminished during the late thirteenth and early fourteenth century as a consequence of the democratic revolutions. Often represented by well-organised guilds, urban middle classes enjoyed a strong position to oppose any attempts at usurping their surplus. Whenever necessary, many craftsmen were also able to take up arms to defend their rights. As opposed to the Italian city-states, urban militias, sometimes grouped according to the guild structure, remained the backbone of the armies in the Low Countries throughout the late medieval period. Consequently, the tax burden remained relatively low throughout the premodern period. Even more pronounced than their political dominance, the economic importance of the cloth merchants diminished in the wake of the democratic revolutions. Competition with foreign merchants and the ongoing textile crisis forced these elites to take a more passive role in the industry, mainly limited to providing the necessary credit. In their place, the clothiers took over, craftsmen of more modest means who oversaw the production process of cloth.[629] By contrast, the merchants still reigned supreme in fourteenth-century Florence. Very few craftsmen were represented in the *Arte della Lana* or wool guild and most of them were little more than employees of the merchants.[630] It is easy to imagine that the organisation and representation of craftsmen in the Southern Low Countries offered better opportunities to generate and safeguard higher levels of wealth. Yet, few generalisations tend to hold up in the face of history. In the rural area of Coastal Flanders, elites managed to assert their control over land and labour markets. As Erik Thoen and Tim Soens have pointed out, inhabitants gradually lost access to land from the late thirteenth

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[628] Bruno Blondé, Marc Boone, and Anne-Laure Van Bruaene, *City and Society in the Low Countries, 1100–1600* (Cambridge: Cambridge University Press, 2018).

[629] Peter Stabel, *A Social History of Cloth Manufacture in Medieval Ypres* (Turnhout: Brepols, 2022).

[630] Goldthwaite, *The Economy of Renaissance Florence*, 265-340.

century on.[631] Environmental hazards, such as storm surges, put increasing pressure on the already struggling peasants. Large landowners bought up their lands and leased them out to commercial farmers, who mainly focused on extensive forms of agriculture, such as cattle breeding. As we have seen, the disappearance of the many smallholders in this area explains why real wages evolved from being the lowest to being the highest in the Flemish countryside. It also explains why the average per capita wealth levels were much higher than what we would expect based on the modest levels found among its lower and middle classes.

In sum, the comparison of living standards in the Southern Low Countries and the Republic of Florence has not revealed a single Golden Age for labour. Instead, we have encountered a patchwork of experiences. The income of daily wage labourers only tells us one story. Looking at the entire strata of households in the fifteenth century, the economic conditions seemed far more favourable in the Southern Low Countries albeit important variations also existed within. Even though the County of Flanders and the Republic of Florence seem to have started from a relatively similar position, their paths diverged significantly during the fourteenth and fifteenth century. Different power relations gave rise to different institutions, such as guilds or labour markets, that would canalise the impact of the demographic shocks in opposing ways. In Florence, the elites were able to double down despite multiple revolts and rising wages. Lower and middle classes outside the capital witnessed a significant decline of their fortunes. By contrast, Flemish households were able to profit from the internal competition between elites since the late thirteenth century. Here, hard work was rewarded and a new material culture emerged in its wake. The sudden increase in inheritances per capita helped to broaden the social and geographical scope of this industrious revolution. In this light, the Black Death hardly signalled a structural break, but rather affected the tempo of ongoing processes.

Deconstructing a centuries-old historiographical narrative is no easy task and much work lies ahead to replace the Golden Age for labour with the far more complex and varied experiences of the Late Middle Ages. It can nevertheless be a liberating experience for historians. No longer must we expect that real wage series or tax records are just another example of a pan-European phenomenon. Instead, they constitute a treasure trove for new and exciting research. We hope that the varied methodological approaches presented in this thesis may serve as an inspiration to critically (re-)examine these types of sources. After all, the County of Flanders, the County of Hainaut, and the Republic of Florence were only three, relatively small polities in a large European network. We have shown how their specific constellations

[631] Thoen and Soens, "The family or the farm: a Sophie's choice? The late medieval crisis in Flanders."

of power and related institutions shaped living standards in the wake of the Black Death and subsequent plague waves. Accordingly, we may expect that different constellations may have resulted in different outcomes. Given that these structural elements of society displayed a great variance across time and space, even within the Italian Peninsula or the Southern Low Countries, many histories still need to be explored. For instance, would the lower classes of the Piedmont countryside have fared better than their Florentine colleagues given the more fragmentary nature of power, the limited spread of sharecropping and the emergence of very large farms in need of many labourers?[632] Were the many landless labourers able to profit from a high daily wage regime after the Black Death or was their employment limited to the few harvest days per year?[633] Only by turning our attention to this kind of questions can we uncover the complex interactions between plague and living standards. In light of the recent COVID-19 outbreaks, such studies may offer us some valuable clues about the (combination of) variables that can potentially determine the economic impact of present-day pandemics in the long-term.

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[632] van Bavel, *The Invisible Hand?*, 138-42.

[633] Domenico Sella, "Household, Land Tenure, and Occupation in North Italy in the Late XVIth Century," *The Journal of European Economic History* 16, no. 3 (1987).

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ENGLISH SUMMARY

A Golden Age for labour?

The Black Death and subsequent plague waves killed millions in the fourteenth and fifteenth centuries. Although these traumatic events unsettled social relations, economic production, and cultural values, scholars have also stressed their positive impact on living standards. The massive loss of life redistributed wealth over the few survivors and pushed income up, allowing many households to improve their diet and consume more goods. The most important evidence for this late medieval evolution relates to the daily wages of building labourers. Long-term series reveal that in no other time before industrialisation, purchasing power was so high across Europe. Already from the nineteenth century on, when historic wage data was first collected, generations of scholars have therefore characterised the century and half after the Black Death as the Golden Age for labour.

Today, the notion of exceptionally high living standards in the wake of mass plague mortality still reigns supreme. Yet, some historians have been more sceptical about the extent of the Golden Age. They questioned the representativeness of daily wages and building wage labourers for the income of society at large, because gains in remuneration might be offset by a strong leisure preference and because most households were not dependent on wages. This thesis takes these comments at heart. It critically examines known and new sources on income, work time, and wealth to determine the true scope of the Golden Age across time, space, and social groups. Thanks to a comparison between the Republic of Florence and the Southern Low Countries, we are able to show that the plague pandemic did not result in a universal increase in living standards. In the last-mentioned region, the income and wealth of most households reached unprecedented heights probably as a result of a type of industrious revolution. Households started to work harder to purchase more consumer goods, which gave rise to a flourishing economy in most communities across the region. In stark contrast, such a positive evolution was absent in the Republic of Florence outside the capital. Here, only the ruling elites were able to increase their fortunes due to protectionist measures, the spread of exploitive forms of urban landownership, and increasing fiscal pressure to finance the many wars. A similar strategy would have been impossible for the elites of the Southern Low Countries considering the fragmentation of power.

This thesis thus illustrates that even in the most extreme cases of crisis, when more than half of the population died, societal structures will channel its impact. In light of the recent COVID-19 pandemic, it may serve as a reminder that policy matters and that we should critically assess existing structures because they might shape future living standards.

DUTCH SUMMARY

Een Gouden Eeuw voor arbeid?

De Zwarte Dood en de daaropvolgende pestgolven doodden miljoenen mensen in de veertiende en vijftiende eeuw. Die traumatische gebeurtenissen zetten druk op sociale relaties, de economische productie, en culturele waarden. Desondanks hebben historici de positieve effecten van de pandemie op de levensstandaard benadrukt. De enorme bevolkingsafname herverdeelde rijkdom en deed het inkomen stijgen, waardoor vele huishoudens meer konden consumeren. Het belangrijkste bewijs voor deze evolutie betreft de daglonen van bouwarbeiders. De loonreeksen tonen aan dat de premoderne koopkracht nooit zo hoog lag in Europa als tijdens de late middeleeuwen. Al sinds de negentiende eeuw, wanneer loongegevens voor het eerst werden verzameld, hebben generaties van onderzoekers de anderhalve eeuw na de Zwarte Dood bestempeld als de Gouden Eeuw voor arbeid.

Vandaag beheerst de idee van een uitzonderlijke levensstandaard in de nasleep van pest nog steeds de historiografie. Toch zijn er enkele historici die de omvang van de Gouden Eeuw in twijfel trekken. Ze stellen vragen bij de representativiteit van daglonen en bouwarbeiders voor het inkomen in de bredere samenleving, omdat loonstijgingen gecompenseerd kunnen zijn door een stijging in het aantal niet-gewerkte dagen en omdat de meeste huishoudens niet afhankelijk waren van lonen. Deze thesis neemt deze bemerkingen ter harte. Ze onderzoekt bekende en nieuwe bronnen met betrekking tot inkomen, arbeidstijd, en rijkdom om de werkelijke omvang van de Gouden Eeuw te bepalen in de tijd en ruimte alsook haar sociale gelaagdheid. Dankzij een vergelijking tussen de Florentijnse Republiek en de Zuidelijke Nederlanden kunnen we aantonen dat de pestpandemie niet leidde tot een universele stijging van de levensstandaard. In de laatstgenoemde regio bereikten het inkomen en het vermogen een ongekende hoogte door een soort van nijverheidsrevolutie. Huishoudens gingen harder werken om meer te kunnen consumeren, waardoor de economie in vele gemeenschappen opbloeide. Daarentegen konden we in de Florentijnse Republiek geen positieve evolutie onderscheiden. Hier kon alleen de heersende elite hun rijkdom vergroten door protectionistische maatregelen, uitbuitende vormen van grondbezit door stedelingen, en een stijgende fiscale druk om de vele oorlogen te bekostigen. Een gelijkaardige strategie had onmogelijk geweest in de Zuidelijke Nederlanden aangezien macht meer verdeeld was.

Deze thesis bewijst dat sociale structuren de impact van crisissen sturen, zelfs in het extreme geval dat meer dan de helft van de bevolking sterft. In het licht van de COVID-19 pandemie herinnert het proefschrift ons eraan dat we het beleid en de bestaande structuren kritisch moeten bekijken omdat ze onze toekomstige levensstandaard kunnen bepalen.

A GOLDEN AGE FOR LABOUR?

Income and wealth before and after the
Black Death in the Southern Low Countries
and the Republic of Florence
1275-1550

Sam Geens

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PhD thesis submitted for the degree of
Doctor of History at the University of Antwerp
to be defended by

Sam Geens

Supervisors:

Prof. Dr. Tim Soens
Prof. Dr. Bruno Blondé
Prof. Dr. Peter Stabel   Antwerp, 2023

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A) County of Flanders

Source	Institution	Location	Days observed	Year from	Year to
18	City of Aalst	Aalst	n/a	1395	1486
11	City of Aalst	Aalst	n/a	1504	1550
15	City of Aalst	Aalst	20	1537	1537
26	City of Aardenburg	Aardenburg	2,333	1309	1309
16	St. Baafsabdij	Aardenburg	55	1546	1549
13	St. Pietersabdij	Afsnee	6	1395	1397
15	St. Pietersabdij	Afsnee	1,728	1409	1539
18	City of Biervliet	Biervliet	n/a	1400	1550
21	City of Blankenberge	Blankenberge	231	1408	1483
16	City of Blankenberge	Blankenberge	1,558	1529	1548
4	Blankenbergse watering	Blankenbergse watering	27,217	1285	1297
2	Blankenbergse watering	Blankenbergse watering	189,19	1302	1499
1	Blankenbergse watering	Blankenbergse watering	2,467	1385	1391
3	Blankenbergse watering	Blankenbergse watering	65,795	1500	1550
20	Count of Flanders	Bornem	1,178	1324	1331
24	Onze-Lieve-Vrouw ter Potterie	Bredene	n/a	1344	1419
27	City of Bruges	Bruges	1,278	1304	1316
12	City of Bruges	Bruges	n/a	1332	1485
24	Onze-Lieve-Vrouw ter Potterie	Bruges	n/a	1342	1419
17	City of Bruges	Bruges	n/a	1361	1485
24	St. Janshospitaal	Bruges	n/a	1401	1419
16	Onze-Lieve-Vrouw Kerk	Bruges	1,543	1450	1508

Source	Institution	Location	Days observed	Year from	Year to
16	Klooster Spermalie	Bruges	11	1486	1496
16	Madeleinehospitaal	Bruges	12,204	1499	1550
16	St. Janshospitaal	Bruges	3,989	1501	1550
16	St. Baafsabdij	Bruges	61	1542	1544
16	Onze-Lieve-Vrouw Kerk	Damme	127	1461	1477
16	City of Damme	Damme	159	1511	1528
13	St. Pietersabdij	Deftinge	13	1372	1399
22	St. Pietersabdij	Deftinge	n/a	1372	1539
19	City of Deinze	Deinze	n/a	1435	1482
18	City of Dendermonde	Dendermonde	n/a	1400	1550
16	St. Pietersabdij	Desselgem	444	1413	1539
15	St. Pietersabdij	Destelbergen	2,869	1411	1518
	Hôpital de Wetz	Douai	4,537	1343	1371
2	Eiesluis watering	Eiesluis watering	26,198	1342	1397
1	Eiesluis watering	Eiesluis watering	9,3	1384	1389
13	St. Pietersabdij	Eke	1	1372	1372
13	St. Pietersabdij	Erpe	6	1393	1393
24	Onze-Lieve-Vrouw ter Potterie	Ettelgem	n/a	1408	1419
15	Abdij Doornzele	Evergem	1,295	1526	1538
15	City of Geraardsbergen	Geraardsbergen	6,949	1449	1548
15	Onze Lieve Vrouwe gasthuis	Geraardsbergen	1,891	1500	1550
22	City of Ghent	Ghent	n/a	1321	1377
25	City of Ghent	Ghent	n/a	1338	1340
13	St. Baafsabdij	Ghent	243	1351	1399
13	St. Pietersabdij	Ghent	153	1358	1400
14	St. Pietersabdij	Ghent	9,851	1406	1504
14	Hebberechtshospitaal (st. Pietersabdij)	Ghent	1,76	1407	1550
14	St. Baafsabdij	Ghent	749	1433	1446
14	St. Jan-ten-Dulle	Ghent	1,993	1470	1549
14	St. Jan and St. Paulgodshuis	Ghent	1,146	1473	1550
14	Rijke gasthuis	Ghent	515	1510	1542
14	Wenemaerhospitaal	Ghent	690	1511	1548

Source	Institution	Location	Days observed	Year from	Year to
14	Godshuis der Wollewevers	Ghent	4	1523	1523
14	Heilige Kerstkerk (st. Saveur)	Ghent	173	1524	1529
14	Kerkfabriek St. Baafs	Ghent	49	1530	1531
14	St. Annahospitaal	Ghent	10	1531	1536
14	Godshuis der kleermakers	Ghent	4	1535	1535
14	City of Ghent	Ghent	24	1545	1545
14	Episcopal Palace	Ghent	51	1550	1550
13	St. Pietersabdij	Groede	5	1387	1388
18	City of Harelbeke	Harelbeke	n/a	1400	1550
16	St. Andriesabdij	Houthave	637	1496	1519
16	Madeleinehospitaal	Houthave	1,521	1499	1545
18	City of Hulst	Hulst	n/a	1475	1550
13	St. Pietersabdij	Idegem	5	1372	1399
13	St. Pietersabdij	Ijzendijke	3	1384	1384
9	Hôpital de St. Sauveur	Lille	10,079	1328	1400
8	St. Cathérine	Lille	18	1386	1386
23	City of Lille	Lille	n/a	1396	1468
16	Klooster Spermalie	Lissewege	4,586	1468	1509
15	Wenemaerhospitaal	Lochristi	806	1511	1548
15	St. Baafsabdij	Massemen	330	1542	1546
22	St. Pietersabdij	Melle	n/a	1404	1429
24	Onze-Lieve-Vrouw ter Potterie	Moerkerke	n/a	1407	1419
13	St. Pietersabdij	Nazareth	6	1372	1399
6	City of Nieuwpoort	Nieuwpoort	n/a	1392	1478
18	City of Ninove	Ninove	n/a	1400	1550
24	Onze-Lieve-Vrouw ter Potterie	Oedelem	n/a	1382	1419
15	Abdij van Oosteeklo	Oosteeklo	3,511	1505	1536
5	City of Oudenaarde	Oudenaarde	n/a	1407	1500
5	Onze-Lieve-Vrouwe hospitaal	Oudenaarde	n/a	1442	1499
18	City of Oudenaarde	Oudenaarde	n/a	1525	1550
10	Count of Flanders	Rupelmonde	3	1299	1299

Source	Institution	Location	Days observed	Year from	Year to
22	Bailif of the Land of Rode	Schelderode	n/a	1322	1409
15	St. Pietersabdij	Sint-Denijs-Westrem	800	1411	1504
15	Kartuizerklooster	Sint-Martens-Lierde	182	1535	1536
16	Klooster Spermalie	Sint-Pieters-Kapelle	2,247	1468	1498
16	St. Andriesabdij	Sluis	12	1496	1496
13	St. Pietersabdij	Smeerebbe	4	1392	1393
22	Lords of Steenhuize	Steenhuize-Wijnhuize	n/a	1453	1515
24	Onze-Lieve-Vrouw ter Potterie	Straten	n/a	1385	1419
13	St. Pietersabdij	Temse	1	1395	1395
18	City of Tielt	Tielt	n/a	1400	1550
24	St. Janshospitaal	Trente	n/a	1412	1418
15	Hebberechtshospitaal (st. Pietersabdij)	Velzeke	242	1407	1482
24	Onze-Lieve-Vrouw ter Potterie	Vlissegem	n/a	1342	1419
17	Onze-Lieve-Vrouw ter Potterie	Vlissegem	n/a	1420	1494
13	St. Baafsabdij	Wattrelos	84	1347	1347
13	St. Baafsabdij	Wijlegem	1	1353	1353
13	St. Pietersabdij	Wijlegem	2	1394	1394
7	City of Ypres	Ypres	76,272	1276	1329
13	St. Pietersabdij	Zaffelare	4	1391	1398
15	St. Pietersabdij	Zaffelare	1,035	1408	1510
13	St. Pietersabdij	Zevergem	2	1397	1397
15	St. Pietersabdij	Zevergem	1,18	1409	1541
7	City of Ypres	Zillebeke	1,698	1323	1323
24	St. Janshospitaal	Zuienkerke	n/a	1401	1419
13	St. Pietersabdij	Zwijnaarde	16	1391	1399
15	St. Pietersabdij	Zwijnaarde	135	1408	1503
Sub-total Flanders			>305,371	1276	1550

B) County of Hainaut

Source	Institution	Location	Days observed	Year from	Year to
29	Count of Hainaut	Ath	n/a	1334	1499
29	Count of Hainaut	Bouchain	n/a	1356	1356
29	Count of Hainaut	Jemappes	n/a	1334	1372
29	Count of Hainaut	Le Quesnoy	n/a	1334	1499
29	Count of Hainaut	Maubeuge	n/a	1336	1336
28	City of Mons	Mons	n/a	1326	1393
29	Count of Hainaut	Mons	n/a	1331	1534
30	Chapitre de Saint-Waudru	Mons	n/a	1500	1549
29	Count of Hainaut	Quaregnon	n/a	1334	1439
29	Count of Hainaut	Renaud Folie	n/a	1334	1408
29	Count of Hainaut	Valenciennes	n/a	1334	1499
Sub-total Hainaut			n/a	1326	1549

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1.2 Defining the nominal wage

The first step before calculating any wage series based on multiple sources is determining which variables matter. Should we heed the warnings of Verlinden's team and restrict ourselves to analyses per institution or, at the opposing end of the spectrum, can we bring all the scattered data together into one series for the entire County of Flanders? Did certain locations or institutions pay a premium compared to others? In short, what were the determinant of the nominal wage? To answer these quintessential questions, we perform multivariate regression analyses on all unaggregated records of building wages in the County of Flanders. First, we have log-transformed all wages to meet the assumption of linearity. In layman terms, we control for the fact that changes in remuneration are best measured in relative rather than absolute terms: a rise from 2 to 4 groten is greater than one from 10 to 12 groten. Next, we included all the available independent variables in our regression to distinguish the most important ones. Based on this information, we have built five different models (see Table A1.1), adding more complexity and/or restricting the selection of data in each subsequent version to balance efficiency (number of variables) and explanatory power (coefficient of determination). The reference group for all models are the unskilled labourers working for a clerical institution in the metropole of Inland Flanders, namely Ghent.

The first model only includes the most basic determinants which are most commonly controlled for in the historiography, namely the skill premium and seasonality. Obviously, the level of skill has a great impact on the wage level (β=0.482) and should be accounted for by different series for skilled and unskilled labourers. If a master carpenter earned less than a digger, there would have been little economic incentive to invest in training and paying entry fees to guilds. The effect of seasonality is far more limited (β=0.012), which is somewhat surprising given that some building labourers, such as masons and pavers, were dependent on the weather and daylight to perform their tasks, which were less favourable during the winter months. One possible explanation is the timing of the introduction of this system. In England, seasonal wages had already been established before the Black Death, though were in many areas momentarily suspended afterwards.[1] In the County of Flanders, however, winter and summer wages only started to differentiate in the majority of the institutions from the very end of the fourteenth century onwards, becoming a permanent feature by the middle of the fifteenth century. While the strategies taken by Flemish and English employers seem completely opposite, their reasoning was actually quite similar: where seasonal wages were

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[1] John Munro, "Builders' wages in southern England and the southern Low Countries, 1346 -1500: a comparative study of trends in and levels of real incomes" (paper presented at the L'Edilizia prima della rivoluzione industriale, secc. XIII-XVIII, Atti delle "Settimana di Studi" e altri convegni, Istituto Internazionale di Storia Economica F. Datini, 2005), 1030-31.

TABLE A1.1 DETERMINANTS OF THE NOMINAL WAGE (DEPENDENT VARIABLE: LN(WAGE))

Independent variables	Standardized Coefficients Beta (ß)				
	Basic	Region	Institution	Inflation	Labour
Year	0.668***	0.564***	0.568***	-0.092***	-0.081***
Skilled (ref. unskilled)	0.482***	0.486***	0.490***	0.680***	0.624***
Season (ref. unknown)	0.012*	0.033***	0.032***	0.050***	0.014
Distance from town (km)		-0.074***	-0.040***	-0.133***	-0.117***
Distance from metropole (km)		-0.286***	-0.310***	-0.199***	-0.166***
Social agrossytem (ref. Inland)					
Coastal		0.130***	0.106***	0.112***	0.022***
Mixed or bipolar		0.039***	0.059***	0.022***	0.044***
Institution (ref. clerical)					
Government			0.061***	0.077***	0.122***
Nobility			-0.022***	0.003	0.063***
Silver content of the groot (gr.)				-0.514***	-0.531***
CPI (gr/basket)				0.068***	0.087***
Labour volume (days)					-0.078***
R²	0.668	0.778	0.781	0.768	0.786
F	9,673***	7,222***	5,695***	3,945***	2,517***
N	14,396	14,396	14,396	13,110	8,246
Period	1276-1550	1276-1550	1276-1550	1330-1550	1330-1550

Notes: The reference for dummies is negative except for the seasons where unknown is set as 0, summer as 1 and winter as -1. The identified metropoles are Ghent and Bruges. ***$p<0.001$, **$p<0.01$, *$p<0.05$.

Sources: See for wages Appendix 1.1, for CPI Appendix 1.4, for silver content of the groot Munro, "Values of Flemish and English Coinages, with Exchange Rates." Online dataset.

introduced in the former region by increasing the summer rate, the system was abandoned in the latter to circumvent the maximum wages imposed by the Statute of Labourers. In both cases, employees received a pay raise but only during a certain time of the year. The late introduction in Flanders may explain the limited impact on the whole regression, but this does not mean that seasonal wages are unimportant, especially when reconstructing wages after 1450. Focussing only on the summer wage, as is standard in some studies, risks to overestimate the salary in places where seasonality played a role.[2] Typically, a lower

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[2] For example Robert C. Allen, "The Great Divergence in European Wages and Prices from the Middle Ages to the First World War," *Explorations in Economic History* 38, no. 4 (2001); Jan L. Van Zanden, "Wages and the standard of living in Europe, 1500-1800," *European Review of Economic History* 3, no. 2 (1999).

remuneration was paid from begin December until early March.[3] Whenever we were faced with seasonal variations, we calculated the annual wage accordingly by multiplying the summer wage by 0.75 and the winter wage by 0.25 before adding them up.

While the explanatory power of the first model is already relatively high (R^2=0.668), the most impactful determinant is our control variable 'Year'. This is included to test any long-term trends not captured by the other variables. Naturally, the passing of time is in itself not a meaningful explanation for general wage trends. The second model therefore introduces new independent variables based on regional differences. Ungrouped regressions revealed that institutions located in certain social agrosystems correlated with higher wages. The contrast between Coastal and Inland Flanders was especially clear (β=0.130). The differences with the mixed or bipolar agrosystems are more limited (β0.039). Moreover, the data for these regions are scattered in time (53 years), which makes it impossible to reconstruct robust continuous series. As a result, we have chosen to only plot series for Coastal and Inland Flanders though we also discuss the general wage level of the mixed or bipolar agrosystems in the main text (see Chapter One). Furthermore, we found that urbanisation impacted remuneration in two ways. First, the metropoles of Ghent and Bruges paid a hefty premium for labour. On average, a skilled building worker in one of these cities could expect his salary to be a fifth to a half higher than that of his colleagues in the rest of the county. This premium declined relative to the distance from the two metropoles. The region model suggests that this impact still had a significant effect of more than ten per cent of the premium up to nine or ten kilometres of the two cities, depending on whether one assumed a log-linear or a log-log relationship between distance and nominal wage (respectively B=-0.011 and -0.108). Considering the important wage differential, we have reconstructed a separate series for (the area around) Ghent and Bruges. Secondly, towns in general seemed to be associated with higher wages. For every kilometre travelled away from the city gates, the price of labour dropped. The unstandardised beta coefficients for our region (B=-0.017) and inflation model (B=-0.022) suggest that locations still paid ten per cent of the urban wage premium seven à eight kilometres away from the nearest urban market. Alternatively, we explored the impact of a log-log relationship between the distance to town and the nominal wage for the region model. This enhanced the effect up to 36 kilometres (B=-0.018). Unfortunately, we do not have the data to verify which relationship is more likely. All of the locations in our database are located within thirteen kilometres of a city and only one out of five surpass the threshold of the earlier mentioned eight kilometres. Unsurprisingly, the explanatory power and the sum of the squared errors of the log-log relationship (adjusted R^2=0.779) are almost identical to the ones for the log-linear relationship (adjusted R^2=0.778). Given that travelling speed is relatively constant irrelevant of total distance, we believe that a linear interpretation is more

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[3] Munro, "Builders' wages," 1030.

warranted. In this context, rural wages can be defined as the remuneration paid in localities situated more than eight kilometres from the nearest town. With limited observations for such localities in our database (n=13), especially for the first half of the fourteenth century (only six years), we did not try to make separate series for such rural communities. This isn't problematic for the interpretation because their inhabitants constitute only a minor group in the County of Flanders, which was characterised by a dense network of towns.[4]

The third model of our multivariate regression analysis adds institutional differences. In terms of overall explanatory power, the impact of these variables seems relatively limited. For the nobility, our data was too scarce to identify structural differences. In one model, the dummy variable is simply not significant while in others its impact is ambiguous, suggesting both positive and negative relationships with wages. Governmental institutions are more clearly associated with higher remuneration albeit its effect is less outspoken than the earlier identified variables (β=0.061). Taken together, institutional characteristics did not warrant the reconstruction of different wage series.

Despite the addition of more independent variables, the high standardised coefficient beta of the control variable 'Year' (β=0.515) suggests that we are still missing important trends. When dealing with long-term price evolutions, the additive effect of inflation may have a very large impact. We therefore control for the intrinsic value of the groot, measured in grams silver per denier, and the evolution of the Consumer Price Index (CPI). The CPI includes the price of various consumer goods to estimate the cost of living and is generally used to calculate inflation rates based on changes between two periods (see Appendix 1.4). The table reports that both independent variables had a significant impact on remuneration. They also explain much of the previously obscured long-term trends considering the remarkable decrease in the weight of the Year-variable (β=-0.092). Unfortunately, reliable data on the intrinsic value of the groot only becomes available from 1330 on, which results in a more limited sample size and makes comparisons of the explanatory power with previous models impossible. The regression analyses show that of all variables the intrinsic value had the second to largest effect on the nominal wage. Since monetary policies applied to the whole county, there is no need to differentiate between wage series based on this variable.

One important limitation of our database is the difference in information on the volume of labour. For the majority of the institutions (65%), we or the consulted authors reported the number of days worked per wage level. For the others, authors only reported the mode per occupation per year or season. It is therefore necessary to check if the omission of this type of

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[4] Peter Stabel, "Urbanisation and Its Consequences: The Urban Region in Late Medieval Flanders," in *Regions and Landscapes. Reality and Imagination in Late Medieval and Early Modern Europe*, ed. Peter Ainsworth and Tom Scott (Bern: Peter Lang, 2000), 181-88.

data fundamentally alters our findings. First, we used a dummy variable for reporting the volume of labour to identify structural differences between the sources. The regression showed that the variable was not significant (p=0.210) and its standardised beta coefficient comparatively very low (0.007). In other words, the inclusion of sources without information on the volume of labour does not affect the results of the regression we discussed earlier. Secondly, we needed to determine if the explanatory power of certain variables in earlier models was (in part) associated with the number of days worked. To this end, we restricted the analysis to the observations for which we have detailed information in the last model of our multivariate regression. Different tests revealed no indications of multicollinearity. Furthermore, the relationships between wages and the different independent variables remained relatively similar across all models, which gives further credibility to the findings. There are however three remarks to be made. As mentioned before, the institutional impact of nobility is ambiguous and should not be given much weight. The impact of seasonality suddenly becoming insignificant is more puzzling. One explanation is that not every labourer received a higher remuneration during the summer. A last remark pertains to the impact of the social agrosystems. After accounting for the volume of labour, the difference between Coastal and Inland Flanders becomes far less outspoken (from β=0.112 to 0.022). This might imply that the earlier relationship was overestimated because our database simply contained more large employers for one region. The regression indicates that high volumes of labour are associated with lower wages (β=-0.078). However, on closer scrutiny, the real explanation must be sought in the different periodisation of the sample sizes between the models. Whereas 92% of the entire database concerns the years before 1507, half of the data with information on the number of days worked pertains to the period afterwards. The gap between Inland and Coastal Flanders was rapidly decreasing in the sixteenth century (see Chapter One), which resulted in the much lower standardised beta coefficient in the last model.

Having established which series we need to reconstruct, the next step is to determine the typical nominal wage per year. This is not self-evident as remuneration was far from uniform even within an occupational group or within a certain region. Labourers of the same trade toiling on the same project sometimes received different compensation. Some workers earned less during winter months, whereas others could count on the same amount irrespective of the season. In one year, an institution might attract labourers by paying higher wages than commonly found on the market. One way to deal with all this variation and arrive at a single figure per year, is to apply the appropriate regression equation based on one of the models in Table A1.1. Such a methodology has for example been employed by Leonardo Ridolfi to reconstruct six centuries of French wages from over 150 different sources or by Gregory Clark to establish a series of English wages from over 45,000 observations. Much like our own

model, they included geographic, institutional (linked to the source), seasonal, and occupational differences in their OLS regression.[5] The advantages of the method are manifold. Most importantly, it allows researchers to automatically fill in the inevitable gaps in the historic data. At the same time, regression modelling suffers from some significant limitations and downsides. While the equation may prove a good fit for the majority of observations, instances of unusual remuneration may have a disproportional impact on the slope of the regression. It is however difficult to eliminate these outliers from a dataset given that the context of the wage setting and thus its representativeness is often unknown in medieval sources. Moreover, the relationship between variables may change either permanently or temporarily due to events, such as the Black Death, or due to more gradual processes, such as the transition from intensive agriculture to extensive husbandry in Coastal Flanders (see Chapter One). If those breakpoints are not properly identified and taken into account, the regression will lose much of its explanatory power. For our own database, the exercise is complicated by the inclusion of both direct and aggregated observations. As we have seen, some secondary sources only provided us with modal wages. Although this had no impact on identifying the determinants of the nominal wage (cfr. supra), it may influence the reconstruction of the typical wage level because aggregated observations only count for a single datapoint. Without information on the number of days toiled, we cannot assign them their proper weight vis-à-vis direct observations.

As an alternative to regression modelling, we calculated first the mode for every occupation in the building industry per source, location, season, and year. Differences between occupations were limited for the group of skilled workers (<5%), except for stone cutters and plasterers who earned respectively 8.0% more and 8.2% less on average than their colleagues. They have accordingly been excluded from the dataset. For unskilled workers, no structural differences could be found based on the type of work performed (all differences were <5%). In a next step, we calculated for both groups and per series the seasonal modes. If the information was available for winter and summer wages, the typical wage level was determined by multiplying the latter by 0.75 and the former by 0.25 in accordance with the number of months each season usually lasted in a work year.[6] In the few cases that this information was lacking, we simply took the average of all modes reported for the relevant

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[5] Gregory Clark, "The Condition of the Working Class in England, 1209-2004," *Journal of Political Economy* 113, no. 6 (2005); Leonardo Ridolfi, "Six Centuries of Real Wages in France from Louis IX to Napoleon III: 1250–1860," *The Journal of Economic History* 79, no. 3 (2019).

[6] Winter wages were normally paid from late November to early March. As effective work time was four hours shorter during this month, the wage was reduced proportionally. Munro, "Builders' wages," 1030.

TABLE A1.2 CORRELATION BETWEEN THE REMUNERATION OF THE DIFFERENT WAGE SERIES (LOG-LOG SCALE)

	Inland (S)	Inland (U)	Coastal (S)	Coastal (U)	Bruges (S)	Bruges (U)
Inland (S)	n/a	0.951***	0.808***	0.834***	0.968***	0.960***
Inland (U)	0.951***	n/a	0.797***	0.585***	0.859***	0.804***
Coastal (S)	0.808***	0.797***	n/a	0.989***	0.923***	0.799***
Coastal (U)	0.834***	0.585***	0.989***	n/a	0.962***	0.922***
Bruges (S)	0.968***	0.859***	0.923***	0.962***	n/a	0.985***
Bruges (U)	0.960***	0.804***	0.799***	0.922***	0.985**	n/a

Notes: S refers to the log-transformed wages of skilled labourers and U to those of unskilled labourers. ***$p<0.001$

skilled or unskilled labourers, assuming that work was normally distributed over the year. Comparisons with the typical wage level in adjacent years with seasonal modes revealed no large discrepancies.

Compared to regression modelling, the modal approach has the advantage of being unaffected by outliers. Moreover, it has the upside of better reflecting the tendency of medieval nominal wages to remain stable for a long period (i.e. wage-stickiness, see Chapter One) by reporting the most commonly paid wage rate on the market. On the other hand, it does not automatically compute wage rates for years without observations. To this end, we perform three different interpolations. First, we can rely on wage-stickiness to estimate the rate paid during gaps encompassing one to three years whenever the nominal wages for the preceding and subsequent years were identical. Secondly, for longer periods with missing information or periods during which rates may have changed, we employed the skill premium of the closest observations in the same region if the wage was known for either the skilled or unskilled labourers. The correlation between the remuneration of those two groups was very high and highly significant after logarithmic transformation of both variables ($R^2>0.95$ and $p<0.001$, see Table A1.2), which means that the relative trend for one group may be used to predict the trend for the other one. Lastly, some gaps still remained for the early fourteenth century due to a scarcity of sources. In these cases, we relied on the correlation between the series to fill in the blanks. Thanks to a high degree of market integration across the County of Flanders, pay rates tended to move in the same direction and the coefficient of

determination was accordingly high ($R^2>0.80$, $p<0.001$).[7] The only exception was the relationship between the unskilled wages of Coastal and Inland Flanders ($R^2=0.585$) because their demographic and economic structure started to diverge fundamentally in the course of the fourteenth century (see Chapter Two). Consequently, no wages have been reconstructed based on this relationship.

[7] For the case of grain prices, see: Stef Espeel, "Prices and crises. The grain economy in fourteenth-century Flanders" (PhD thesis, Antwerp University, 2021).

1.3 Grain prices in the County of Flanders

Grain constituted the basis for much of the medieval diet in Flanders, such as bread and ale.[8] Subsequently, grain accounted (indirectly) for a significant share of the cost of living. If we want to reconstruct consumer baskets, a robust price series for this product is thus quintessential. The best starting point for this effort are the wheat, rye, oats, and barley prices of the Saint Donatian's Chapter in Bruges. Three times per year, this institution established and recorded the price of different types of grain, butter, and cheese to estimate the revenue gained from payment in kinds. According to Adriaan Verhulst, the reported figures were likely based on market rates that were common during the time of the price setting. Confrontation with actual market prices revealed that the level was indeed very similar before the end of the sixteenth century: in most cases, the difference was less than 10%. Verhulst has published all data for the period between 1348 and 1800.[9] For the fourteenth and fifteenth century, there were no gaps. For the first half of the sixteenth century, prices were lacking for rye for the years 1501-1550 and for barley for the years 1522-1550.

For the period before 1348, we rely on the grain prices recently reconstructed by Stef Espeel for some twenty institutions in the cities of Bruges, Ghent, Lille, Douai, and Cambrai. Similar to the series mentioned above, they include wheat, rye, oats, and barley. Given the identical geography, Espeel's data for Bruges can be integrated directly with the those published by Verhulst. Unfortunately, even the most comprehensive series, that of wheat, still lacks observations for almost half the years between 1275 and 1348 (44.44% of all years).

To fill in the gaps for the different grain price series for Bruges, we relied on simple linear regressions. Preferably, we utilised the relationship between different grain types reported for this city. This was possible for the second half of the sixteenth century because wheat prices were available for all years in the data of Verhulst. They display a very strong relationship with rye ($R^2=0.938$) and barley ($R^2=0.859$). For wheat in the earliest period, we employed the data from the other cities to calculate its price based on the average of all regressions that displayed a sufficiently high correlation ($R^2>0.5$, $p<0.01$). This was the case for all types of grains and cities except for oats in Ghent, which were characterised by a relatively low coefficient of determination ($R^2=0.33$).[10] Subsequently, they were removed from the calculation. In this manner, the number of gaps in the wheat series were reduced by half (to 22% of the total

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[8] Tim Soens and Erik Thoen, "Vegetarians or carnivores? Standards of living and diet in late medieval Flanders," in *Le Interazioni fra economia e ambiente biologico nell'Europa preindustriale secc. XIII-XVIII*, ed. Cavaciocchi Simonetta (Firenze: Firenze University Press, 2010), especially figure 1.

[9] A. Verhulst, "Prijzen van granen, boter en kaas te Brugge volgens de slag van het Sint-Donatiaanskapittel (1348-1801)," in *Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, ed. C. Verlinden (Bruges: De Tempel, 1965).

[10] The coefficient of determination for the other series were: 0.60 for rye in Ghent; 0.77 for wheat in Lille; 0.70 for rye in Lille; 0.67 for wheat in Douai; 0.47 for oats in Douai; 0.61 for wheat in Cambrai; and 0.65 for rye in Cambrai.

years). Information was never lacking for more than two subsequent years except for the years between 1294 and 1298. From 1320 on, the data is complete. Having established a series for the type of grain with most observations, the earlier established relationship between wheat and barley as well as rye could be used to estimate their respective price level. The gaps are accordingly identical to the wheat series.

Although Bruges arguably offers the best sources to reconstruct reliable grain price series, its economic and demographic profile isn't necessarily representative for the entire County of Flanders. As a commercial metropole, prices were probably well above the levels found in other places. Table A1.3 explores this issue for a number of regions and shows that grain prices were on average 16% lower on their markets during the Late Middle Ages. Given that these still included relatively large settlements, boosting some 5,000 to 10,000 inhabitants, and could still count on an extensive urban industries, we can easily imagine that the price difference with smaller towns and villages must have been even more pronounced. By using grain prices from Bruges, we therefore risk to underestimate the purchasing power of building labourers. In contrast to our wage series, the data for prices is however too scant to build different series depending on location or settlement type.

TABLE A1.3 PRICE DIFFERENTIAL BETWEEN BRUGES AND OTHER REGIONS IN THE COUNTY OF FLANDERS

Grain	Region	Castellany	Period	N	Avg. ratio	Std Dev
Rye	Inland	Oudenaarde	1400-1500	99	97.8%	20.1%
Wheat	Mixed	Lille	1303-1400	68	84.7%	22.2%
Wheat	Bipolar	Douai	1314-1400	69	64.0%	18.0%
Oats	Inland	Waas	1400-1500	89	88.9%	29.9%
Oats	Inland	Kortrijk	1405-1500	90	83.1%	20.8%
Oats	Mixed	Lille	1329-1400	51	81.6%	15.5%
Oats	Bipolar	Douai	1329-1400	56	78.9%	22.6%
Total			1303-1500	522	84.0%	24.1%

Sources: for Lille and Douai Espeel, Prices and crises; for other regions Croisiau, G. "Prijzen in Vlaanderen in De 15e Eeuw." In *Dokumenten Voor De Geschiedenis Van Prijzen En Lonen in Vlaanderen En Brabant*, edited by C. Verlinden, 33-53. Bruges: De Tempel, 1959.

1.4 Sources and methodology for the consumer baskets

The composition of the consumer basket is based on the model developed by Paolo Malanima.[11] It provides around 2,500 kcal per capita per day and includes nine items related to food (bread, rye, meat, eggs, butter or olive oil, wine or beer), clothing (linen), and fuel (firewood or coal). For each item per region, we explain the used methodology and sources below:

A) The County of Flanders

Bread 1277-1550	For the County of Flanders, bread prices cannot be observed directly because prices were fixed. It was customary to adjust the weight rather than the price per loaf to account for changing production costs. At regular intervals, local governments published tables that stipulated how much each type of bread should weight at certain price levels of grain.[12]

At least from 1291 on, the city of Bruges conducted regular baking test. Functionaries bought a certain quantity of grain, milled it and appointed a baker to produce different types of loaves to see how much bread each quantity of grain could produce. The city then set the official yield at a lower level to accommodate for production costs and profit for the bakers. Based on the official yield, the weight of loaves could be calculated for any given grain price. In 1431, Bruges established a final pricing regime according to this system. The ratios remained in force until the eighteenth century and were adopted in many neighbouring places.[13] A copy of a table from 1663, containing the required weight of loaves for seventeen price intervals, is preserved and allows us to estimate the price of bread according to following formula:[14]

$$P_b = P_w/Y$$

Where P_b is the price of 1 kg bread, P_w is the price of one litre of wheat and Y is the official yield in kilograms per litre. Wheat prices for the County of Flanders

[11] Paolo Malanima, "When did England overtake Italy? Medieval and early modern divergence in prices and wages," *European Review of Economic History* 17, no. 1 (2013): 49-51.

[12] Marie-Jeanne Tits-Dieuaide, "Le grain et le pain dans l'administration des villes de Brabant et de Flandre au Moyen-Age," in *Het openbaar initiatief van de gemeenten in België, historische grondslagen (ancien régime)*, ed. W. Prevenier (Brussels: Gemeentekrediet van België, 1984).

[13] Remi Van Schaïk, "Marktbeheersing: overheidsbemoeienis met de levensmiddelenvoorziening in de Nederlanden (14de-19de eeuw)," in *Ondernemers & Bestuurders. Economie en politiek in de Noordelijke Nederlanden in de late middeleeuwen en vroegmoderne tijd.*, ed. C. Lesger and L. Noordegraaf (Amsterdam: NEHA, 1999); Jan de Vries, *The Price of Bread. Regulating the Market in the Dutch Republic* (Cambridge: Cambridge University Press, 2019), 87.

[14] Cornelis Fr. Eversdyck, *Paste-boeck vanden broode* (Goes: Jacques Fierens, 1663), 11.

are available from our constructed series (see Appendix 1.3). The official bread yield is deduced from the variables given in the table:

$$Y = P_w . W_b$$

Where W_b is the weight of a loaf in kilograms per denier at a given wheat price in deniers per litre (P_w). For all seventeen price intervals given in the table of 1663, the average official yield was 0.277 kg bread per litre of wheat for the most luxurious white bread (called *wittebrood*), 0.353 kg for finely bolted bread (*fijn terwenbrood*), and 0.554 kg for bolted bread (*grof terwenbrood*).[15] Real yields were of course much higher. The same source also reported baking tests for the different types of bread. Apparently, one litre of wheat produced 0.553 kg white bread (200% of official rate), 0.677 kg finely bolted bread (192%), 0.803 kg bolted bread (145%) and 0.990 kg unbolted or whole wheat bread.[16]

Most consumer baskets include only the cheapest bread, namely whole wheat or rye bread, depending on the regional preference. While this wat not necessarily the type of loaf normally consumed by middle classes in the County of Flanders, we have opted to follow earlier studies for comparative reasons. Unfortunately, the table of 1663 informs us only about the real yield of whole wheat bread and not the official yield. If we assume a simple linear relationship between both yields (R^2=0.952), a baker would sell 0.741kg of bread per one litre of wheat purchased.[17] This ratio seems plausible when we compare it to price regulations of thirteen other cities in the pre-modern Low Countries, where the official yield was on average 0.748kg unbolted bread per litre of grain.[18] The ratio of 0.741kg/l. can thus be applied to our wheat series to compute the cost of bread (see first formula above).

Rye 1277-1550	Rye prices are mainly taken from the same institution we used for wheat prices, the Saint Donatian's Chapter in Bruges (see Appendix 1.3). Based on market prices, the chapter established the cost of one *hoet* of rye thrice per harvest year between 1348 and 1502 to appraise their rents in kind. From 1502 on, the

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[15] Due to practical constraints, such as non-decimal weight measures and the value of the smallest coins, the relationship between the weights of loaves and the price of wheat could vary per price interval. Overall, the standard deviation was however limited (0.015 kg) and the average yield can thus safely be used.

[16] Real yields after milling costs and taxes. The difference between the official yield and the yield of the baking test thus represents the cost of additional ingredients, such as yeast, milk and eggs, as well as the labour cost of the baker. Eversdyck, *Paste-boeck vanden broode*, 22-24.

[17] It is quite possible that the relationship between official and real yields is exponential rather than linear (both have R^2=0.952). In this case, one litre of grain could be sold as 0.900kg of bread. A profit margin of 10% without accounting for taxes and milling excises seems however low and out of line compared to other price regulations. Most importantly, the impact of using one or the other ratio on the total cost of the consumer basket is fairly limited (±5%). As we are reconstructing a respectable basket, we rather overestimate than underestimate the price of bread.

[18] de Vries, *The Price of Bread*, table 1.3.

priests resorted to a fixed relationship with wheat. The rye price was set at 66.66% of the wheat price, which seemed to be a reliable predictor.[19] For our series, we use the average price per harvest year as reported by Verhulst.[20]

For the period before 1349, we have used the data reported by Stef Espeel, containing both market and rent prices of three religious institutions in the city of Ghent.[21] Missing values have been interpolated from our wheat price series by applying the ratio used by the Saint Donatian's Chapter.

Meat 1291-1550	Most medieval institutions bought living animals rather than meat. They either had a butcher in service or paid one to process the animals when needed. Consequently, meat prices per weight unit figure rarely in the sources. The only serial data available pertains to the purchase of living cows, swine, and sheep. The quality of the animal, defined by its weight and age, is unfortunately never specified or, in a best-case scenario, only vaguely described as being fat or meagre, and young (e.g. lamb) or old (sheep). As a result, prices can fluctuate wildly within any year. In the fifteenth-century Saint John's Hospital, the maximum price paid for a swine was on average double that of the minimum.[22] To reduce the impact of variable quality, we have selected only those series that are based on multiple observations per year for a consistent subset of animals during at least two decades. We have focused on cow prices because the data is more abundant compared to other animals and because beef constituted the largest share in the meat consumption of medieval Flanders.[23] Our database includes cows purchased by the Saint John's Hospital in Bruges (average observations per year unreported)[24] and by the Saint Cornelius' Abbey in Ninove (n=49.1/year); slaughter cattle purchased by the almoner of the Saint Peter's Abbey in Ghent (n=2.1/year); and cows which have been levied by the bailiff as death duty in the castellany of Oudenaarde (n=4.4/year).[25] The data encompasses the period between 1372 and 1550. Medieval animals were smaller than their contemporary offspring. The average cattle yielded approximately 100 kilograms of meat based on zooarchaeological findings of cow, bull, and oxen bones.[26] This estimate is confirmed by data for

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[19] The correlation between the rye and wheat prices was very high between 1349 and 1502 (R^2=0.938). The average ratio between the two price series was 66.23%.

[20] Verhulst, "Prijzen van granen, boter en kaas," 43-46.

[21] Espeel, "Prices and crises."

[22] Chris VandenBorre, "Prijzen, lonen en levensstandaard in Brugge en omgeving tijdens de 14de en het begin van de 15de eeuw" (Master thesis, Rijksuniversiteit Ghent, 1998), 105.

[23] Soens and Thoen, "Vegetarians or carnivores? Standards of living and diet in late medieval Flanders," 500.

[24] VandenBorre, "Prijzen, lonen en levensstandaard," 287.

[25] Erik Thoen, "Landbouwekonomie en bevolking in Vlaanderen gedurende de late Middeleeuwen en het begin van de Moderne Tijden. Testregio: de kasselrijen van Oudenaarde en Aalst (eind 13de- eerste helft 16de eeuw)" (PhD thesis, ibid.1988), Bijlage 8.

[26] Günter Nobis, "Haustiere in mittelalterlichen Bremen," *Bremer archäologische Blätter* 4 (1965): 41.

religious institutions in the Duchy of Brabant between 1400 and 1600, which contains both prices for beef and per type of cattle. Dividing the price of the animal by the meat price gives us a crude indication of their weight: meagre cows provided on average 91.5 kilograms of meat, with a standard deviation of 20.2 kilograms (n=73).[27] Applying the yield of 100 kilograms per animal to our data resulted in realistic series for the sources of Bruges and Ninove, but not for the other two. Meat prices per kilogram of slaughter cattle were consistently very high. It might be that the Ghent meat market was indeed much more expensive, but this seems unlikely as prices in the nearby metropoles of Bruges and Antwerp, even during its golden age, never reached such levels. It is more probable that the slaughter cattle simply yielded more meat than the other types in our database. Data from the Brabantine institutions suggests that slaughter oxen provided on average 314.5 kilograms of meat, with a standard deviation of 61.3 kilograms (n=78). We have therefore tripled the estimated yield to 300 kilograms per animal. On the other end of the spectrum, the meat prices for levied cows were consistently low. This is unsurprising given that, in contrast to our other series, the data does not pertain to market prices. After the bailiff seized the cows, they were sold off at auctions where family members of the deceased serf could reclaim them at favourable rates. Moreover, many serfs who paid the death duty in Oudenaarde belonged to the lower social strata.[28] Their cows were probably of a lesser quality than those bought by the religious institutions. We have therefore halved the estimated yield to 50 kilograms per animal.

The meat price included in the Flemish consumption baskets is based on the average price of all four series. Given the different assumptions we had to make, it is necessary to check the robustness of the model. We therefore compare the price evolution and level of our series with direct observations of meat prices in a nearby region. As mentioned above, such data is available for the Duchy of Brabant, which was situated at the eastern border of the county. We expect that meat prices would have reached similar levels and moved in the same direction over the long term. Indeed, fifteenth-century rye prices imply a relatively high degree of market integration (R^2=0.697).[29] Correlating our reconstructed meat series with those of Brabant allows us to reject the null hypothesis (no or low

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[27] Meat prices are taken from John Munro, "Prices in Brabant, 1400-1700," (2013). which is primarily based on Herman Van der Wee, *The Growth of the Antwerp Market and the European Economy. Fourteenth-Sixteenth century* (Antwerp: Nijhoff, 1963), Appendix 10. Prices of cattle are taken from Etienne Scholliers, "Prijzen en lonen te Antwerpen (15de en 16de eeuw)," in *Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, ed. A. Verhulst (Bruges: De Tempel, 1965), 305-08.

[28] Thoen, "Landbouwekonomie en bevolking," 287-89 and 426-35.

[29] Correlation calculated between Flemish rye prices in year t and lagged Brabantine prices (t-1) because the latter pertains to prices per calendar year (January-December) and the former to prices per harvest year (June-July). Verhulst, "Prijzen van granen, boter en kaas."; Van der Wee, *The Growth of the Antwerp Market*, Appendix 1.

correlation). It even suggests a better integration for meat (R^2=0.779), which can be explained by its greater elasticity of demand and the more volatile character of grain prices. The robustness of our Flemish series is also confirmed by the price level (see graph below). The cost of meat was similar in both regions. Prices were only 1% higher on average compared to Brabant, with a standard deviation of 20%.

To fill any gaps in his data, Robert Allen extrapolates meat prices based on more commonly available cheese prices. Because they are both animal products, they tend to have a high correlation.[30] For the County of Flanders, cheese prices can be traced back to 1291, eight decades before the start of our animal prices. Without proper meat prices it is however impossible to make a reliable regression analysis. We must therefore rely on the regression equation derived from the Brabantine series. Here, the correlation between cheese and meat was very high (R^2=0.917). Given the degree of market integration and the similarity in price levels, we assume a similar relationship for the county. To predict Flemish meat prices (y) based on cheese prices (x) we used following equation:[31]

$$y = 0.0685 + 1.6051x$$

Cheese prices are taken from the accounts of the Saint Donatian's Chapter (1349-1500) and the hospital of Our Lady of the Pottery (1342-1348) in Bruges, the hospital of Saint-Sauveur in Lille (1325-1349), the domain of the counts of Flanders in the Francs of Bruges (1296-1320) and the hospital of Our Lady in Oudenaarde (1291-1325).[32] The extrapolated meat prices follow a nearly identical evolution and level compared to our reconstructed series based on animal prices, confirming its usefulness as a proxy, except for two periods (see graph below). Between 1379 and 1385, our series is characterised by a sudden and significant decrease in meat prices while cheese prices suggest the exact opposite trend. In fact, most of the published food prices, such as wheat or butter, witness an increase during this period because of the Ghent Revolt.[33] Why then is our reconstructed series so far off the mark? One possible explanation lay in the nature of our data. Until 1397, the only observations of animal prices we have, are limited to the auctioned cows that have been levied in the castellany of Oudenaarde. In this region, the Ghent Revolt was

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[30] Allen, "The Great Divergence," Appendix 1.

[31] Regression based on prices in Flemish groten per kilogram.

[32] Verhulst, "Prijzen van granen, boter en kaas," 67-70; VandenBorre, "Prijzen, lonen en levensstandaard," 280-83; "Comptes de l'hôpital Saint-Sauveur," (Lille: Archives départementales du Nord); "Accounts of the comital domains of Flanders," in *Renengues* (Brussels: Algemeen Rijksarchief); Thoen, "Landbouwekonomie en bevolking," 76; Maurits Gysseling, "Corpus Gysseling," (Instituut voor Nederlandse taal, 2013), Corp.I, 1040.

[33] Verhulst, "Prijzen van granen, boter en kaas."

particularly destructive to the countryside.[34] It is therefore plausible that the prolonged series of warfare was detrimental to both the quality of the levied cows and the disposable income of the bidders at the auctions, thus lowering the price of the recorded animals. We have therefore adopted the meat price based on the cheese equation for the period between 1379 and 1385.

The second problematic period is the 1460's. Again, the trend is opposite: our reconstructed series suggest a modest increase whereas the regression shows a significant fall in meat prices. This time, the reason for divergence is to be sought in the cheese series. Compared to other foodstuff, cheese purchased by the Saint Donatian's chapter suddenly became cheaper in the middle of the fifteenth century, a trend that is not mirrored in the Antwerp series. Adriaan Verhulst, who published the price data, has pointed out this anomaly. According to him, the chapter either began to purchase a cheese of lesser quality than before or there was a negative shift in the demand for the type of cheese purchased, causing prices to drop.[35] We therefore believe that our reconstructed meat prices are more reliable than the cheese equation for this period. From 1470 on, evolutions in the two series are identical again but the price gap remains constant.

FIGURE A1.1 COMPARISON OF MEAT PRICES FOR FLANDERS AND BRABANT

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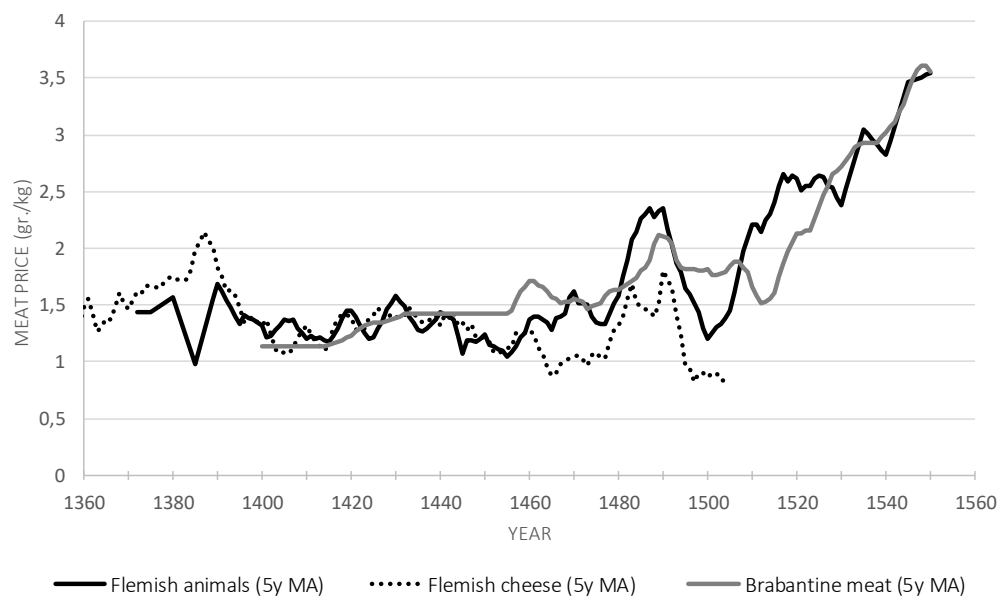
[34] Sam Geens, "The great destruction of people and wealth. The impact of the Ghent Revolt on wealth inequality in the last quarter of the fourteenth century.," in *Inequality and the city in the Low Countries (1200-2020)*, ed. Bruno Blondé, et al., Studies in European Urban History (Turnhout: Brepols, 2020), 222-27.

[35] Verhulst, "Prijzen van granen, boter en kaas," 28-29.

Eggs
1291-
1550

Piece prices for eggs figure rarely in accounts because eggs were cheap. They are often grouped together with other expenses or, when they are entered separately, the quantity bought is omitted. For more than half of the seventeen cities included in Robert Allen's study of consumer prices, pre-modern egg prices had to be extrapolated from other animal products, namely meat or cheese prices.[36] For the County of Flanders, we were able to collect data for 22 years from the accounts of the comital domains in the Francs of Bruges (1300-1320), the household expenses of the lord and lady of Cassel and Bar (1330-1368), and the Saint Madeline's hospital in Bruges (1501-1536).[37] Because our prices of meat are based on estimates and our cheese prices are faulty for the fifteenth century (see meat), we have used the more robust butter series (see below) to extrapolate egg prices for the large gaps between and before the scattered data points. The correlation between the two series is relatively high ($R^2=0.767$) though our observations are limited of course (n=17). Data from the neighbouring Duchy of Brabant does confirm the relationship between egg and butter prices ($R^2=0.939$). Comparing these egg prices from Brussels with our reconstructed series for Flanders also supports the robustness of the latter (see graph below).

FIGURE A1.2 COMPARISON OF EGG PRICES IN FLANDERS AND BRABANT

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[36] Allen, "The Great Divergence," 435-41.

[37] "Accounts of the comital domains of Flanders."; "Hôtel des sires et dames de Cassel et de Bar," (Lille: Archives départementales du Nord); A. Wyffels, "Prijzen uit Brugse instellinsrekeningen (16de eeuw)," in *Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, ed. C. Verlinden (Bruges: De Tempel, 1965), 75.

Butter 1291-1550	The most complete series of butter prices for the County of Flanders is composed of data from the accounts of the Saint Donatian's Chapter in Bruges (1348-1498). Similar to their grain series (see rye and wheat), the chapter established the price of butter based on market values thrice per year to appraise their rents in kind.[38] To extend the series in time and increase its reliability, we have complemented it with data from appraisals of rents of the counts of Flanders (1302-1305) and purchases made by the hospital of Our Lady in Oudenaarde (1318-1499), the hospital of Our Lady of the Pottery in Bruges (1342-1419), the hospital of Our Lady in Geraardsbergen (1434-1500), six religious institutions in Ghent (1503-1549), and the Saint Madeline's hospital in Bruges (1531-46).[39]

Because butter and cheese are made from the same basic ingredient, namely milk, it is plausible that cheese prices can be a good proxy for butter prices. The correlation between our two series is however fairly low (R^2=0.325).[40] This counter-intuitive result can be explained by changes in the cheese series. As we have explained above (see meat), the appraisal of cheese prices by the Saint Donatian's Chapter in Bruges diverge from other price series in the middle of the fifteenth century. Indeed, until 1400, the correlation with butter is very high (R^2=0.874). The coefficient of determination starts to drop progressively thereafter, falling below 0.500 in the early 1460's. Fortunately, our butter series is complete for the fifteenth century. With only significant gaps between 1290 and 1317, we can safely apply the regression equation of the fourteenth century to estimate butter prices for these years.

Beer 1277-1550	Together with bread, beer constituted the core of the medieval diet in the Low Countries. Water was only consumed by animals and milk or its derivates were considered cheap substitutes for meat rather than a full-fledged drink.[41] While wine was the most popular beverage in the Mediterranean world, the higher expenses and difficulties in growing grapes in the colder and wetter climate of Northwestern Europe restricted its consumption to the higher classes of society. As a result, the production and sale of beer were heavily regulated in the county of Flanders. Governments regularly intervened in the price setting, especially those of the lower quality, which were vital to the needs of the lower

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[38] Verhulst, "Prijzen van granen, boter en kaas," 64-67.

[39] "Accounts of the comital domains of Flanders."; Thoen, "Landbouwekonomie en bevolking," Annex 8; VandenBorre, "Prijzen, lonen en levensstandaard," 279; P. Vandewalle, "Prijzen van slachtvarkens, zout en boter te Geraardsbergen (15de eeuw)," in *Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, ed. C. Verlinden (Bruges: De Tempel, 1965), 466; M. Toch, "Prijzen uit Gentse instellingsrekeningen (16e eeuw)," ibid. (1973), 366-68; Wyffels, "Prijzen uit Brugse instellinsrekeningen," 72-73.

[40] See footnote 32.

[41] Raymond Van Uytven, *Geschiedenis van de dorst. Twintig eeuwen drinken in de Lage Landen* (Leuven: Davidsfonds, 2007), 46-55.

classes. Failure to safeguard its accessibility could result in social unrest. Similar to bread (cfr. supra), officials tried to keep the price of cheap, light beer as stable as possible. In Bruges for example, citizens paid around 0.11 groten for a litre of beer during much of the fourteenth and fifteenth century even though the price of its main ingredient, grain, had tripled.[42] While the varying cost of the production of bread was compensated by changing the weight of loaves, the content of a pint of beer remained largely unchanged. Instead, brewers reduced the amount of grain used when costs increased, which impacted the fermentation process, resulting in lower alcohol by volume (ABV).[43]

As sources rarely mention the quantity of ingredients used per brew, it is impossible to account for the variable quality of the product. The stable prices of cheap and widely consumed beer are therefore unusable for our consumer baskets. Stronger, more expensive beers consumed by middle classes fit better in our respectable basket and are more comparable to the wine of medium quality included in the Florentine basket.[44] They are characterised by slightly more variable prices, especially in regard to the high-end beers imported from Holland and Hamburg. Unfortunately, purchases only figure haphazardly in accounts. The only beverage for which we can produce reliable long-term price series is Rhine wine. The aldermen of Ghent gifted almost every year a cask of this type of wine to a number of prominent figures, such as the sister of the count, which allows us to trace the price from 1316 on.[45] Small gaps in the series are remedied with the accounts of the Saint Peter's Abbey (1312-1399) and the Saint Bavo's Abbey (1351-1535) in Ghent, and the city accounts of Alost (1504-1549).[46] For the period between 1370 and 1382, we have used a

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[42] VandenBorre, "Prijzen, lonen en levensstandaard," 276; Sigrid Dehaeck, "Voedselconsumptie te Brugge in de Middeleeuwen (1280-1470): casestudy van het Sint-Janshospitaal en het hospitaal van de Potterie" (Universiteit Gent, 2000); "Vlootrekening 1316," (Bruges: Stadsarchief Brugge).

[43] Erik Aerts, "Dorst heeft een prijs. Bierprijzen te Lier tussen 1400 en 1800," *Revue belge de philologie et d'histoire* 87, no. 3-4 (2009): 597-605.

[44] In fact, the quality is not controlled for. An average off all, widely diverging prices of one hospital is taken. Charles-Marie de La Roncière, *Prix et salaires à Florence au XIVe siècle (1280-1380)* (Rome: École Française de Rome, 1982), graph 10.

[45] J. Vuylsteke, *Gentsche stads- en baljuwsrekeningen, 1280-1336*, 3 vols. (Ghent: Meyer-van Loo, 1900); *De rekeningen der stad Gent. Tijdvak van Jacob van Artevelde : 1336-1349*, 3 vols. (Ghent: Maatschappij van Nederlandsche letterkunde en geschiedenis, 1874); A. Van Werveke and H. Van Werveke, *Gentse stads- en baljuwsrekeningen, 1351-1364* (Brussels: Paleis der Academiën, 1970); D.M. Nicholas and W. Prevenier, *Gentse stads- en baljuwsrekeningen (1365-1376)* (Brussel: Paleis der Academiën, 1999); J. Vuylsteke, *De rekeningen der stad Gent. Tijdvak van Philips van Artevelde, 1376-1389* (Ghent: A. Hoste, 1893); "Stadsrekeningen," (Ghent: Stadsarchief Gent).

[46] W. Prevenier, K. Deblonde-Cottenier, and L. Van Damme-De Mey, "Prijzen en lonen in de domeinen der Gentse abdijen (St. Pieters en St. Baafs). (13e-14e eeuw)," in *Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, ed. C. Verlinden (Bruges: De Tempel, 1973), 291; Toch, "Prijzen uit Gentse instellingsrekeningen," 397-400; G. Croisiau, "Prijzen in Vlaanderen in de 15e eeuw," ibid. (1959), 49; B. Goffin and Etienne Scholliers, "Prijzen en lonen te Aalst (16e eeuw)," ibid. (1972), 193.

regression-based interpolation with wine of lower quality given by the aldermen as alms to the poor of Ghent (R²=0.923).

Rhine wine was an imported luxury good. Its consumption was largely reserved to the elites of society. Its high price would lead us to underestimate the purchasing power of medieval labourers when included in our basket. On average, the strongest (>6% ABV), most high-end beers costed only one fifth of the price of Rhine wine during the fifteenth and sixteenth century in Ghent (n=15).[47] These beers were not out of reach for the middle classes, but they did not consume them on a daily basis. During the last quart of the sixteenth century, the production of a new beer of good quality, called *dubbele clauwaert*, started in Ghent to replace its predecessor, the *enkele clauwaert*, which had watered down due to inflating grain prices. It quickly became one of the most popular drinks in the city, accounting for half of the local beer production.[48] The *dubbele clauwaert* costed in the years after its introduction on average 8.94% of the price of Rhine wine (n=10), which was similar to the price relationship of the *enkele clauwaert* before its watering down (8.7% of Rhine wine, n=2).[49] This ratio was used to convert our wine series into a proxy for a qualitative and widely consumed beverage comparable to those included in the Florentine baskets.

Naturally, luxury wine is not an ideal proxy for beer because they are made of different base ingredients. Furthermore, the former is imported from vineyards near the Rhine, while the latter is produced locally. Regional differences and changes in transportation fees, labour cost and climate could have impacted prices in divergent ways. It is therefore doubtful that prices would have moved perfectly together, even if no maximum prices were set for beer and its quality was guaranteed. We therefore need a robustness check.

One alternative proxy for qualitative beer would be to estimate the cost of brewing it. Indeed, this has been the preferred methodology for most consumer baskets. For instance, Robert Allen and John Munro relied on barley prices to value the cost of drinking in medieval England and Flanders respectively.[50] There are however several problems with this methodology. Brewing involved more expenses than grain alone. Labour, *gruit* or hops, fuel, infrastructure, taxes, transportation costs and profit margins are not taken into account. Their prices did not follow a similar evolution, as is evident from our discussion of

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[47] Compared to *Oosters bier* (1406-1416), *Hamburg bier* (1406-1410), and *dobbelbier* (1588-1597). VandenBorre, "Prijzen, lonen en levensstandaard," 275; Toch, "Prijzen uit Gentse instellingsrekeningen," 395. On the ABV of good or double beer, see: Van Uytven, *Geschiedenis van de dorst*, 94-96.

[48] Paul De Commer, "De brouwindustrie te Gent, 1505-1622. Deel 2," *Handelingen der Maatschappij voor Geschiedenis en Oudheidkunde te Gent* 37 (1983): 115-23.

[49] Toch, "Prijzen uit Gentse instellingsrekeningen," 395; Paul De Commer, "De brouwindustrie te Gent, 1505-1622. Deel 1," *Handelingen der Maatschappij voor Geschiedenis en Oudheidkunde te Gent* 35 (1981): 89.

[50] Allen, "The Great Divergence," 435; Munro, "Builders' wages," 1023-26.

the CPI and the nominal wages in Chapter One. It is true that grain was the main component, accounting for 50 to 80% of the total expenditure, but this rarely involved barley alone.[51] In fact, barley did not constitute the bulk of the grain used to make malt. In the Low Countries, oats was the most common ingredient for malting and wheat often supplemented the mixture. In some cases, barley was replaced with spelt or never used at all. A popular beer from Delft consisted of 72 parts of oats and 24 parts of wheat.[52]

To check the robustness of our Rhine wine series, we first estimated the cost of malt. Unfortunately, we have no knowledge of a surviving recipe for the *dubbele clauwaert*, so we have no clue about the different ingredients used. Instead, we based ourselves on a similar qualitative, double beer brewed in Utrecht. According to an ordonnance of 1467, a brewer who wanted to produce twenty barrels of *dubbele kuit* was obligated to use 10 *mudde* of oats, 6 *mudde* of barley and 4 *mudde* of wheat.[53] The cost of malt based on these weights is traced in the graph below. While there is a different price level compared to our adjusted Rhine wine series, the trends are roughly similar. The gap between the two becomes larger around 1370 and again around 1440, which is probably caused by a relative increase in the cost of the other components, especially in the case of labour and taxes. Between 1370 and 1390, real wages doubled and new taxes on beer were introduced in the city of Ghent.[54] In the 1440's, nominal wages increased once more and remained at this level until 1550 (see Chapter One). Again, the urban taxation on beer increased heavily during this period, especially between 1442 and 1453.[55] To account for the diminishing share of grain in the total expenditure, we have divided the malt price by the two extremes of its presumed share (from 80 to 50%, see above) though we have no reliable way of knowing the exact relationship between them. The formula can be written as follows:

$$DK_t = \frac{P_{otv} + P_{btv} + P_{wtv}}{V(0.8ES_{1277-1369} + 0.65ES_{1370-1439} + 0.5ES_{1440-1550})}$$

DK_t is the price of a certain volume V of *dubbele kuit* in any given year t. P_{otv} is the price of oats needed to produce the volume V in the same given year t, P_{btv} conveys the same for barley and P_{wtv} for wheat. ES relates to dummy variables for the expenditure share of grain in the three different periods. While the result

[51] Aerts, "Dorst heeft een prijs," 595.

[52] Van Uytven, *Geschiedenis van de dorst*, 62.

[53] S. Muller, *De Middeleeuwse Rechtsbronnen der stad Utrecht* ('s-Gravenhage: Martinus Nijhoff, 1883), 366.

[54] D.M. Nicholas, *The Metamorphosis of a Medieval City: Ghent in the Age of the Arteveldes, 1302-1390* (Lincoln: University of Nebraska Press, 1987), 229-30.

[55] M. Boone, *Geld en macht: de Gentse stadsfinanciën en de Bourgondische staatsvorming (1384-1453)* (Gent: Maaatschappij voor Geschiedenis en Oudheidkunde te Gent, 1990), 130-37.

is a crude estimation of beer prices at best, the similarities with the adjusted Rhine wine prices are striking, both in level (only 2% difference on average) and trend (R^2=0.601), especially when controlling for the volatile character of grain prices (R^2=0.838 for 5-year moving averages). The fact that two independent methodologies arrive at roughly the same results give them credibility, or at least more credibility than simply taking the price of a certain amount of barley. For our consumer baskets we prefer the adjusted Rhine wine series above the *dubbele kuit* because it covers the expenses of all components without estimation. The last is nonetheless useful to push our data back to 1277 and fill the gaps in the 1310's and 1380's.

FIGURE A1.3 COMPARISON OF BEER PRICES IN FLANDERS
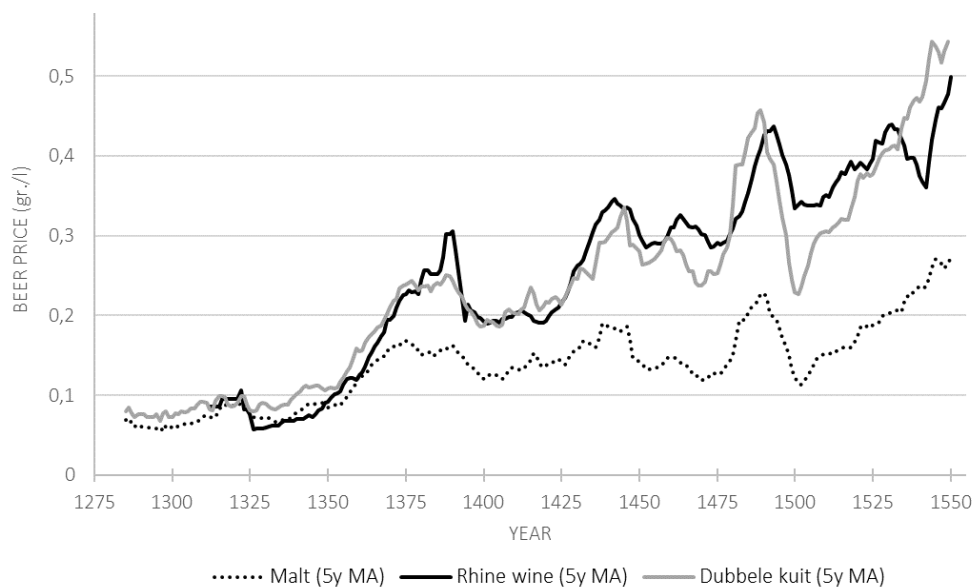
Clothing 1302-1550

Although the linen industry was already expanding since the last decades of the fourteenth century, its real break-through only started from the sixteenth century onwards. Woollen cloth production dominated the Flemish textile sector during much of the period under study here, especially in the urban economies.[56] As a result, linen prices figure infrequently in the accounts while those of woollens are more abundantly available. It is therefore more feasible to reconstruct a series for the cost of clothing from the latter and adjust its price level to that of linen based on the scattered information we do have.

John Munro has gathered and published an extensive amount of data on the purchases of woollen cloths for a diversity of officials in the city of Ghent and

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[56] Thoen, "Landbouwekonomie en bevolking," 980-97; Etienne Sabbe, *De Belgische vlasnijverheid. De Zuidnederlandse vlasnijverheid tot het verdrag van Utrecht (1713).* , 2 vols., vol. 1 (Kortrijk: Nationaal Vlasmuseum, 1975).

Bruges.[57] It allows us to control for the quality of the fabric and, to some extent, the quality of the finish (dye and snit) through the recipients. The most complete series pertains to *dickedinnen* gifted to the aldermen of Ghent (1315-1550). Data for important gaps between 1302 and 1330 as well as between 1383 and 1401 were extrapolated through a regression with the prices of *strijpte lakens* given to the aldermen of Ghent (1323-1400; R^2=0.843) and the mean prices of all cloth except the very expensive scarlets given to the aldermen of Bruges (1302-1496; R^2=0.857). The length of each piece was recorded when it deviated from the standard broadcloth. For all others, we assumed a length of 35 ells (24.5 metres) for the fourteenth century and 30 ells (21 metres) for the fifteenth century due to different production techniques.[58]

Some accounts of religious institutions in Bruges and Ghent provide us with (quinquennial) linen prices for the periods 1356-65, 1393-99, 1426-40 and 1536-70.[59] This information is in itself insufficient to reconstruct a price series for our consumer baskets, but it does allow us to transform our woollen prices to the level of linen through a simple linear regression equation (R^2=0.891). To be clear, the result is not necessarily a trustworthy series for medieval linen prices in Flanders. Instead, it is a reliable proxy for a more commonly used clothing material in the county, namely woollens, whose quality was similar to the material most often included in other consumer baskets, namely linen.

Fuel 1308-1550	Peat was the most important source of energy in late medieval Flanders thanks to the presence of coastal peat marshes. The aldermen of Ghent, consumed on average 92 tonnes of peat each year to warm their city halls and handed out 123 tonnes annually as alms to the poorhouses during the fourteenth and fifteenth century. These expenses were meticulously recorded in the city accounts from 1314 on, detailing not only the price per *last* (10.000 bricks) and quantity bought, but also very often the quality of the product.[60] Until 1382, the aldermen mainly purchased *brauturven* (ca. 82%) and a lesser amount of *bruturven*. While the exact meaning of these terms has been lost throughout time, it is plausible that the former is derived from its practical use

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[57] John Munro, "Medieval and early modern textile prices," (Centre for Medieval Studies, 2008). We consulted the excel files labelled 'Bruges woollen cloth prices, 1302-1500', 'Ghent woollen cloth prices, 1330-1570', 'Ghent: Prices, 1314-1392', 'Ghent: Prices, 1400-1499', and 'Ghent: Prices, 1500-1569'.

[58] "Three Centuries of Luxury Textile Consumption in the Low Countries and England, 1330-1570: Trends and Comparisons of Real Values of Woollen Broadcloths (Then and Now)," in *The medieval broadcloth. Changing trends in fashions, manufacturing, and consumption*, ed. Kathrine Vestergard Pedersen and Marie-Louise Nosch (Oxford: Oxbow Books, 2009), 10-11. See also explanatory note to his online datasets.

[59] Prevenier, Deblonde-Cottenier, and Van Damme-De Mey, "Prijzen en lonen," 284-88; Wyffels, "Prijzen uit Brugse instellinsrekeningen," 86; C. Vandenbroeke, "Sociale en konjunkturele facetten van de linnennijverheid in Vlaanderen (late 14e-midden 19e eeuw)," *Handelingen van de maatschapij voor Geschiedenis en Oudheidkunde te Gent* 33 (1979): 145.

[60] See footnote 45.

(*brouwturven*) or its colour (*grauwe turven*), both referring to a grayish brick harvested from the transitionary layer between the topsoil and the high-quality brown or black peat, used mainly in industrial activities such as brewing. The latter may likewise be associated with its colour, in this case *brunturven* or the brownish peat mentioned earlier, which was mostly used for heating.[61] In support of the etymologic interpretation, the price of the two types hints at a difference in quality: for every *bruturf*, the aldermen could purchase two *brauturven*.

In 1382, the terms used to indicate the different types of peat suddenly change and become clearer. Based on the similarity of their price levels, *brauturven* are now referred to as *derdepits* and *bruturven* as *vierdepits*, which indicates the depth or layer the bricks were extracted from (the third and fourth pit respectively).[62] The deeper the pit, the better the quality but the higher the cost. Together with the name change, the city accounts show a radical shift in composition with the vast majority of bricks now being *vierdepits* (ca. 98%).

By the end of the fifteenth century, the fragile mires northeast of the city became more and more depleted after centuries of fuelling the extensive urban economy. Although a new dredging technique allowed for harvesting peat in already inundated marshes and the import from the Northern Low Countries still supplied a steady stream of peat, firewood became increasingly important. Between 1494 and 1521, the number of peat bricks bought by the aldermen of Ghent had decreased to one third of its previous levels, while the expenses for wood had reversely tripled. The new type of dredged peat only figured thrice in the accounts (1475-76 and 1518) and only in small amounts, probably because of its inferior quality. In 1467, the cost of the peat alms becomes indiscernible from other alms as they are grouped up together per institution. In 1539, the detailed expenses related to heating the city halls disappear from the city accounts.[63]

Despite the diminishing importance of peat in the sixteenth century, we have chosen to not include firewood in our consumer basket because their prices figure less frequently in the city accounts compared to peat (only between 1459 and 1519) and, more importantly, prices are given per piece. In contrast to peat bricks, the size or mass of a piece of wood was irregular and cannot be controlled for. We prefer the price of *vierdepits* over those of *derdepits* for our series because the former was more suited for and commonly used for heating.

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[61] Charles Cornelisse, *Energiemarkten en energiehandel in Holland in de late Middeleeuwen*, Hollandse Studiën (Hilversum: Verloren, 2008), 22.

[62] Iason Jongepier et al., "The brown gold: a reappraisal of medieval peat marshes in Northern Flanders (Belgium)," *Water History* 3, no. 2 (2011): 88-89.

[63] It is possible that they were moved to the minutes or the detailed justifications of the aldermen expenses. These are preserved from 1540 on.

For the early period (1314-1382) for which we lack *bruturf* prices, we transformed the available *brauturf* prices based on a simple linear regression (R^2=0.829). Other minor gaps were filled by applying a similar methodology to the city accounts of Ypres (1308-1328; R^2=0.684) and the accounts of ten religious institutions in Ghent (1498-1550; R^2=0.609).[64]

According to the literature, a modest family would need around one *last* peat per year for heating and cooking whereas an elite household consumed three to four times as much fuel.[65] To determine the quantity for our basket more precisely, we have followed Malanima's prerequisite of 6000 kcal per day per capita. Charles Cornelisse suggests that one kilogram of peat averaged between 3000 and 3400 kcal based on 21 different studies.[66] We have taken the high-end of his estimation because of the high quality of peat purchased by the aldermen. Since one *last* weighted 2182 kilograms in Ghent, one person would need 644 kilograms or 2,951 bricks of peat per year.[67] This means that an average urban household of 4.5 people would need 1.32 *last* per year, which seems in line with the earlier mentioned estimations in the literature.[68]

Missing values

The total price of the consumer basket is equal to the sum of all its contents. Since we regularly lack the price for one or more items in certain years, it is necessary to interpolate these missing values. Some scholars, like Robert Allen, prefer to fill gaps by replicating the value of the last observation until a new one is encountered. Others, like Munro, assumed a linear trend instead. The last method has the advantage of keeping that averages based on multiple years remain undistorted. Both methodologies are however unreliable when values are missing for consecutive years. Prices rarely stay stable or move in the same direction over multiple years. We have therefore chosen to determine the average share of each item in the total cost of the basket for every decade and used the observed ratios to interpolate the total cost of a basket in any given year. Whenever values were missing, the total cost of the observed items was divided by the sum of their respective shares in that particular decennium. For example, we lacked cloth prices for the year 1325. According to other

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[64] For the religious institution, we have excluded the data for the Poorhouses, the almhouse of the weavers before 1513, and the almhouse of St. Jacob before 1502 because the quality of peat was either too low or too high compared to the other purchases. G.D. Marez and É. de Sagher, *Comptes de la ville d'Ypres de 1267 à 1329* (Brussels: Kiessling, 1913); Toch, "Prijzen uit Gentse instellingsrekeningen," 379-88.

[65] Jongepier et al., "The brown gold," 77.

[66] Cornelisse, *Energiemarkten en energiehandel*, 270-73.

[67] Karel Leenders, *Verdwenen venen: een onderzoek naar de ligging en exploitatie van thans verdwenen venen in het gebied tussen Antwerpen, Turnhout, Geertruidenberg en Willemstad, 1250-1750* (Brussels: Gemeentekrediet van België, 1989), 60.

[68] For the size of late medieval urban households, see: Peter Stabel, *De kleine stad in Vlaanderen: bevolkingsdynamiek en economische functies van de kleine en secundaire stedelijke centra in het Gentse kwartier (14de-16de eeuw)* (Brussels: Paleis der Academiën, 1995), 69-75.

observations in the 1320's for which we have all items, the share of cloth accounted for 8.32%. We subsequently divided the total price of all observed items in 1325 by 0,968. For the period between 1270 and 1300, we had to use the decennial shares of the 1300's because no year compromised observations for all items of the consumer basket.

Compared to the other methods of interpolation, the one used here has the advantage of allowing prices to move in a non-linear way. Missing values do not distort the price evolutions observed for other items. Ultimately though, the choice for one or the other method doesn't really impact the results. A comparison of all three showed little differences: the total cost of consumer baskets varied on average less than 0.2% (±3.3%) across the entire period and less than 0.6% (±7.5%) for the more fragmentary observations in the period before 1349.

B) Mons (Hainaut)

Bread 1295-1550	Bread prices were calculated according to the method we developed for Flanders based on the wheat prices. For the city of Mons, grain prices are available for much of the fourteenth and sixteenth century thanks to the work of Christiane Piérard and Ivan Delatte.[69] Gaps in the series can partly be remedied by wholesales of grain by the Count of Hainaut in the cities of Mons, Valenciennes, Le Quesnoy, Ath, and Maubeuge.[70] These prices were generally lower than actual market prices based on the observations of both types in Mons for some years. They nevertheless moved in the same direction judging from the relatively strong correlation between the series of Piérard and Delatte on the one hand and the comital series on the other hand ($R^2>0.5$), except for Ath and Maubeuge (respectively $R^2=0.43$ and 0.28). The last two have been excluded, whereas the average of the other regressions was used to estimate wheat prices in years without direct observations. In the end, only 24 years are missing out of the 256 years with only two major gaps (between 1296 and 1308 as well as between 1336 and 1340).

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[69] M.I. Delatte, "Prix et salaire en Hainaut au XVIe siecle," *Annales du cercle archéologique de Mons* 55 (1937); Christiane Piérard, "Prix et salaire au XIV siècle et au premier tiers du Xve siècle," ibid.70 (1976): 36-37.

[70] Gérard Sivéry, "L'évolution du prix du blé à Valenciennes aux XIVe et XVe siècles," *Revue du Nord* (1965).

Rye; Barley; Oats 1295-1550	We only found information on rye prices for some years in the sixteenth century.[71] For the earlier period, we employed the same relationship we found between Flemish wheat and rye prices to convert the already established wheat prices for Hainaut. The few observations we have for the sixteenth century do confirm a similar, very strong relationship between the two (R^2=0.876). Similar exercises were conducted for barley and oats though for the latter we also integrated the direct observations by Piérard for the period between 1311 and 1442.
Meat 1349-1505	Just as for Flanders, there are no direct observations for meat prices per unit available, but we do possess of cow prices thanks to a death duty, called mortmain. A large database of mortmains collected by the Count of Hainaut was compiled by Joris Roosen and contains no less than 6,071 assessed or sold cows for the period between 1349 and 1505.[72] Of these 157 years, only 20 years are missing observations. Considering the similarities between the death duties in Hainaut and Oudenaarde, we assumed the levied cows also had a similar mass (i.e. 50 kg., cfr. supra). Accordingly, the meat price per kilogram could be calculated.
Eggs; Butter 1502-1550	Data on egg and butter prices were reported by Delatte for the sixteenth century but not by any other consulted author for the period before.[73] Given their limited weight in the consumption basket, we have not attempted new archival research.
Beer 1295-1550	Like the County of Flanders, beer prices for Hainaut are scarce. We do have 38 observations of Rhine wine prices in Mons between 1308 and 1440 but they are too scattered to make a continuous series. We therefore apply the same formula we derived for the *dubbele kuit* in Flanders to the grain prices of Mons (cfr. supra). Because we don't have any simultaneous observations for actual prices of this type of beer and of Rhine wine, it is impossible to deduct the ratio between the two drinks and employ the data for the latter product to spot check the robustness of our reconstructed beer series like we did for Flanders. We can nevertheless check if the relative evolution was similar by plotting the prices on two different y-axes. Figure A1.4 shows that this was indeed the case and

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[71] Delatte, "Prix et salaire."

[72] I am very much indebted to Joris Roosen for providing me access to his database. Joris Roosen, "Mortmain database," (2020).

[73] Delatte, "Prix et salaire."

confirms once again that our formula may serve as a good proxy for beer prices in the Southern Low Countries.

FIGURE A1.4 COMPARISON OF BEER AND WINE PRICES IN MONS
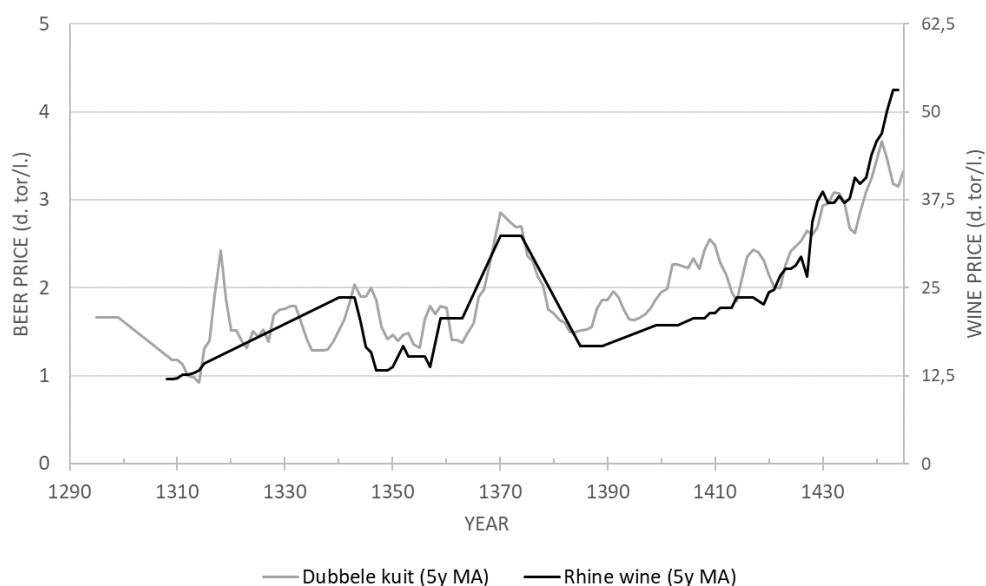
Cloth
1310-
1505

Linen prices for Hainaut can be found in the mortmains database because the representatives of the counts of Hainaut regularly levied linen goods as a heriot tax and sold them at auctions. In total, 161 observations for the period between 1353 and 1505. To fill in the gaps and expand the series back into time, we may employ the prices of striped cloth bought for the robes of the urban officials in Mons. The series encompasses 61 datapoints and runs from 1310 to 1440.[74] To adjust their price levels to that of cheaper linen, we use a simple linear regression. The correlation with the mortmain data is sufficiently high to warrant such an approach (R^2=0.67).

Fuel
1338-
1437

Coal prices are reported by Piérard for Mons for 107 years in the period between 1338 and 1437.[75] The caloric energy of coal and the required amount needed to heat a household in Northwestern Europe is given by Paolo Malanima (i.e. 365 kg.).[76]

Missing
values

Given that the series for Mons displays significantly more gaps for several products, we have opted to use the decennial shares derived from the more robust series of Flemish consumer baskets to interpolate the total cost of living in years for which we miss some data.

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[74] Piérard, "Prix et salaire," 48-50.

[75] Ibid., 55-56.

[76] Malanima, "When did England overtake Italy?," table 2.

C) Antwerp (Duchy of Brabant)

The prices of most products can be found in the seminal work of Herman Van der Wee on the Antwerp market. It is noteworthy that some of those prices were taken from other Brabantine cities, such as Brussels, Mechelen, or Lier because data was lacking for Antwerp proper.[77] The information is readily available from a dataset on European prices compiled and published by Robert Allen.[78] The earliest records start in 1366 but data only becomes sufficiently available from 1400 on to reconstruct reliable consumer baskets. Furthermore, Van der Wee did not report bread nor beer prices. In contrast, Allen's dataset does contain figures for bread in Antwerp based on a regression modelling, including the price of grains, the cost of skilled labour, and a dummy variable for location.[79] Given that most observations for bread prices pertain to the late early modern and modern period, it is unclear how representative the relationship between the variables is for the Middle Ages. In any case, for comparative reasons, we prefer to estimate the cost of the two missing products based on our own methodology earlier outlined for Flanders.

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[77] Van der Wee, *The Growth of the Antwerp Market*.

[78] Robert C. Allen, "Consumer price indices, nominal / real wages and welfare ratios of building craftsmen and labourers, 1260-1913," (International Institute of Social History).

[79] "The Great Divergence," 418-19.

1.5 The price of consumer baskets per decade

A) The County of Flanders (in d. gr. Fl.)

Decade	Bread 200 kg	Rye 130 l	Beef 15 kg	Eggs 40	Butter 6 kg	Beer 210 l	Cloth 5m	Fuel 644 kg	Basket annual
1270	29.1	9.2				18.2			94.4
1280	29.5	9.4				15.2			90.3
1290	30.8	9.8	6.5	0.2	3.9	16.6			95.3
1300	30.1	9.6	6.6	0.3	4.1	18.5	9.2	18.8	97.3
1310	43.8	14.7	10.6	0.3	5.9	21.9	7.4	22.0	122.6
1320	35.8	10.6	9.0	0.5	5.2	15.5	8.6	18.6	104.3
1330	37.9	13.2	8.9	0.6	5.4	14.4	9.0	24.4	114.0
1340	46.4	17.2	15.1	0.9	6.8	19.2	10.1	28.9	144.8
1350	65.6	21.9	17.2	2.2	10.9	24.6	11.9	42.8	196.5
1360	94.0	31.3	21.2	2.7	14.6	40.8	14.8	53.0	272.5
1370	87.7	26.5	23.7	3.3	16.7	48.9	18.7	58.8	285.5
1380	92.7	31.3	27.5	3.7	18.4	56.5	23.9	51.7	304.4
1390	63.2	19.7	20.6	2.5	13.5	40.3	20.1	30.7	210.2
1400	85.8	28.7	19.3	2.3	12.8	41.5	20.3	43.3	253.3
1410	77.4	25.3	19.8	3.0	15.5	40.1	19.2	39.7	240.0
1420	87.7	28.6	20.4	3.5	17.5	53.5	19.8	44.1	275.1
1430	118.3	37.0	20.5	3.6	18.2	69.6	22.6	43.8	332.5
1440	83.8	27.1	18.9	3.7	18.7	65.7	24.5	38.3	280.8
1450	91.6	29.9	17.6	3.2	16.5	62.7	23.5	38.9	284.8
1460	68.3	20.7	21.9	3.2	16.3	64.7	25.4	32.0	252.4
1470	88.0	28.3	21.8	3.4	17.4	63.3	26.4	34.1	283.8
1480	146.6	49.4	33.5	5.3	25.6	85.9	38.4	46.5	430.0
1490	87.7	26.9	23.1	3.8	18.7	77.1	46.7	41.5	327.2
1500	93.2	30.0	26.1	4.2	20.2	73.2	44.1	35.7	327.1
1510	97.9	31.4	37.0	5.3	25.3	79.7	40.1	41.5	358.9
1520	128.7	41.3	37.9	5.8	27.3	90.0	40.8	49.8	421.7
1530	152.7	49.0	43.4	7.1	32.9	81.8	42.9	58.3	468.7
1540	171.0	54.9	51.5	9.1	40.9	103.8	44.7	59.7	535.6
1550	188.3	60.5	53.2			126.9	54.1	66.7	606.2

B) The County of Hainaut (Mons, in d. tor.)

Decade	Bread 200 kg	Rye 130l	Meat 15 kg	Eggs 40	Butter 6 kg	Beer 210 l	Charcoal 365 kg	Linen 5 m	Basket Annual
1300	607	195				247			1750
1310	823	264				279	66		2145
1320	1080	347				337			2959
1330	849	273				297	181	102	2478
1340	1099	353	94			366		169	2959
1350	968	311	231			353	226	318	2724
1360	1159	372	268			422	187	253	3010
1370	1001	321	263			467	176	224	2785
1380	729	234	220			352	167	190	2031
1390	755	242	226			369	169	192	2111
1400	1005	323	223			504	165	194	2597
1410	893	287	231			437	179	193	2436
1420	1090	350	315			536	245	217	2984
1430	1283	412	327			651	233	246	3415
1440	998	320	307			659	242		3235
1450	1121	360	251			730	212		3367
1460	898	288	257			585	203		2843
1470	1114	358	247			726	242		3338
1480	1875	602	388			1221	439		5555
1490	1231	395	290			802	231		3884
1500	1173	377	248		237	764	258		3665
1510	1221	353		97	249	774			4031
1520	1976	421		112	333	1172			5789
1530	2044	518		121	342	1257			6195
1540	2158	725		154	410	1423			6869
1550	2121	681		152	418	1382			6704

C) The Duchy of Brabant (Antwerp, in d. gr. Br.)

Decade	Bread 200 kg	Rye 130l	Meat 15 kg	Eggs 40	Butter 6 kg	Beer 210 l	Charcoal 365 kg	Linen 5 m	Basket Annual
1400	98.7	25.0	25.5	3.1	18.2	45.9	16.2	32.6	265.3
1410	103.8	27.3	26.5	3.6	22.7	51.0	16.9	41.9	293.6
1420	128.9	42.0	30.5	5.2	28.1	66.2	19.4	45.0	365.2
1430	187.5	59.7	31.9	6.0	31.8	95.2	22.7	48.6	483.3
1440	142.3	45.5	31.9	5.6	29.9	78.5	21.5	56.5	411.7
1450	145.3	49.8	35.2	5.2	28.9	73.8	23.0	46.1	407.3
1460	107.6	37.9	35.2	4.3	23.6	61.4	25.3	47.0	342.2
1470	142.7	46.8	35.3	5.9	29.7	75.2	23.5	51.3	410.4
1480	261.3	93.1	43.5	9.5	45.2	176.6	30.9	67.1	727.3
1490	172.4	62.7	40.8	6.7	29.3	94.2	27.7	59.1	493.1
1500	168.1	50.3	40.2	6.2	31.0	90.9	23.5	66.4	476.6
1510	177.3	61.1	40.7	7.5	43.7	98.9	27.2	66.8	523.1
1520	263.8	93.0	55.6	7.9	44.7	128.9	33.1	70.2	697.2
1530	275.9	98.3	66.4	8.7	46.5	140.1	30.6	51.6	718.0
1540	302.7	104.3	77.5	10.4	52.5	148.1	42.7	52.3	790.6
1550	244.2	89.5	77.6	9.8	60.4	154.3	54.1	63.6	753.5

1.6 Real wages per decade

A) The County of Flanders (in baskets)

Decade	Skilled				Unskilled			
	Inland	Coastal	Bruges-Ghent	County	Inland	Coastal	Bruges-Ghent	County
1280	11.69	9.75	17.54	11.87	7.80	3.90	8.77	6.71
1290	7.96	6.63	11.94	8.08	5.30	2.65	5.97	4.57
1300	6.51	5.29	9.01	6.46	4.36	2.59	4.50	3.82
1310	6.34	5.27	8.09	6.24	4.20	2.70	4.89	3.83
1320	7.40	5.96	10.60	7.38	4.78	3.25	6.47	4.53
1330	6.82	5.44	10.07	6.83	4.36	2.97	6.02	4.15
1340	6.38	4.59	11.05	6.45	3.64	2.55	5.53	3.55
1350	6.17	6.63	10.52	6.90	3.95	3.97	5.26	4.13
1360	5.88	7.13	9.93	6.81	3.53	4.12	5.00	3.91
1370	8.63	8.51	11.15	8.93	5.06	4.91	5.16	5.03
1380	8.46	9.67	14.26	9.62	4.84	5.74	5.79	5.25
1390	11.04	12.37	16.58	12.20	6.02	8.39	8.29	7.07
1400	9.15	10.25	14.64	10.23	5.13	6.96	7.32	5.99
1410	10.50	10.92	15.60	11.32	5.46	7.41	7.80	6.38
1420	10.22	11.36	13.37	11.00	5.12	6.68	6.68	5.82
1430	8.89	9.22	11.48	9.34	4.45	5.74	5.74	5.02
1440	10.21	9.88	13.61	10.56	5.10	6.59	6.81	5.79
1450	10.13	9.80	14.74	10.64	5.06	6.53	7.37	5.83
1460	11.29	10.93	16.75	11.91	5.64	7.28	8.38	6.52
1470	10.17	9.85	15.10	10.73	5.09	6.67	7.55	5.91
1480	6.81	6.59	10.11	7.18	3.41	5.27	5.05	4.21
1490	9.14	10.98	13.56	10.31	4.57	7.08	6.78	5.65
1500	9.11	11.25	12.94	10.29	5.11	6.75	6.47	5.81
1510	8.44	10.23	11.76	9.44	5.11	6.14	5.88	5.54
1520	7.17	8.69	9.99	8.02	4.41	5.21	5.00	4.74
1530	6.49	7.86	9.04	7.26	4.52	4.72	4.52	4.58
1540	6.12	7.00	8.05	6.66	4.03	4.20	4.03	4.08
1550	5.57	6.02	6.93	5.90	3.46	3.61	3.46	3.51

B) The Duchy of Brabant (Antwerp) and the County of Hainaut (Mons)

Decade	Skilled		Unskilled	
	Antwerp	*Mons*	*Antwerp*	*Mons*
1320		2.71		1.35
1330		3.73		1.86
1340		3.13		1.57
1350		5.84		2.62
1360		7.88		3.89
1370		9.96		4.98
1380		11.22		5.61
1390		10.48		5.24
1400	10.29	8.57	5.20	4.29
1410	9.49	9.26	4.74	4.63
1420	7.58	11.88	3.79	5.94
1430	7.17	10.62	4.43	5.31
1440	9.79	11.04	5.82	5.52
1450	10.38	10.94	6.05	5.47
1460	12.20	12.68	7.12	6.34
1470	10.21	10.96	5.96	5.48
1480	6.31	6.61	3.70	3.31
1490	8.98	10.24	5.61	5.12
1500	8.98	10.08	5.63	5.04
1510	9.25	9.25	5.42	4.63
1520	7.71	6.36	4.61	3.18
1530	7.77	5.90	4.50	3.17
1540	9.82	5.46	5.18	3.09
1550	10.91	6.54	5.45	3.92
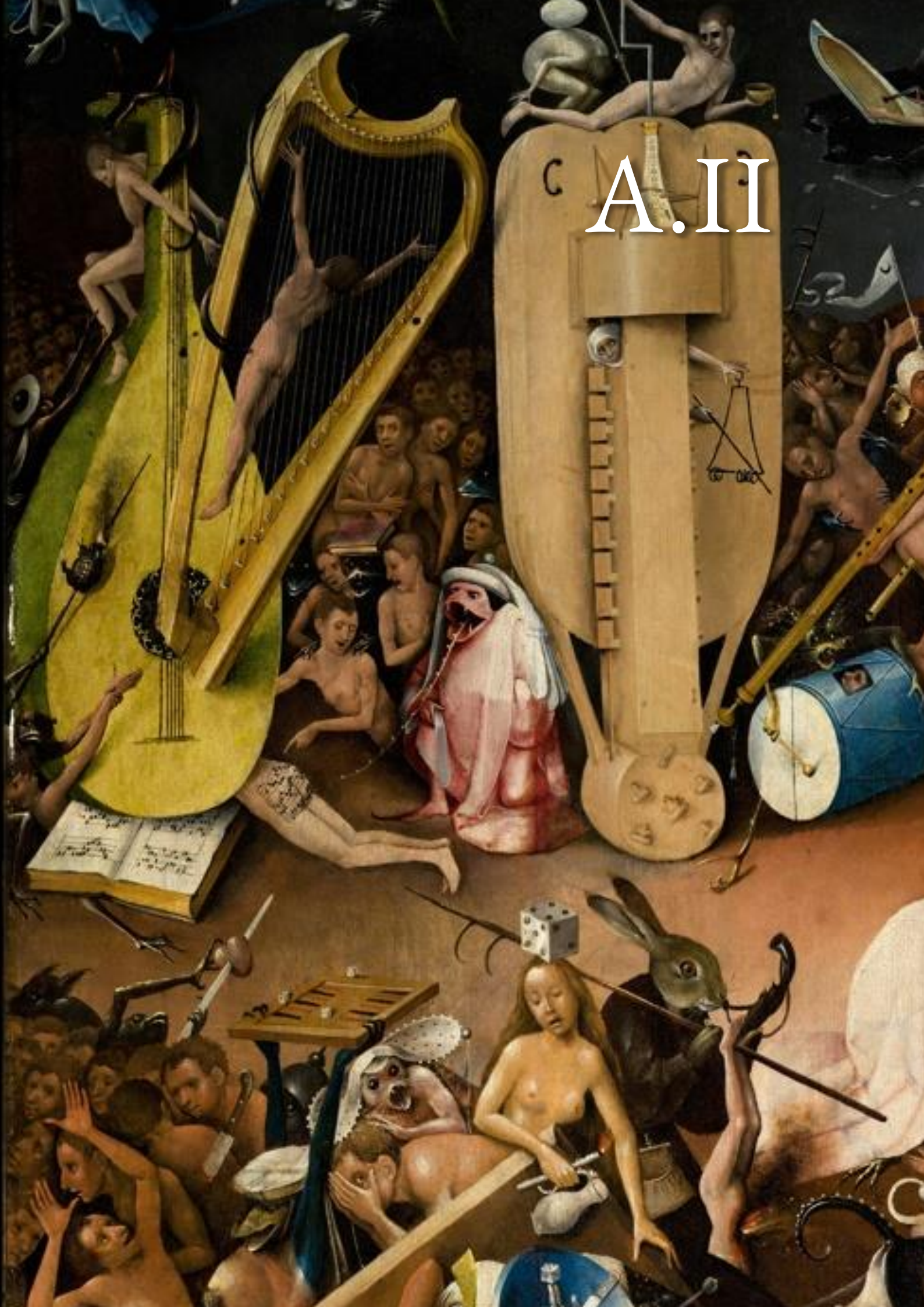
2.1 The search for representative data on the work year

Although the accounts of the water board of Blankenberge list the number of days toiled by thousands of labourers across three centuries, the vast majority of data is hardly representative for the typical work year of a full-time labourer. Many factors may have influenced employment rates in varying ways. It is therefore necessary to select only those cases which can be compared over time and which can give a reliable reflection of the changing attitudes toward work. To this end, we have proposed four conditions that have to be met by the data:

A) The comparability of the social profile of the labourers

First of all, the occupational group has to be stable throughout the observed period. As we have seen in Chapter Two (see 2.1 Pick a number), professional miners came to replace the farmer-miners as the dominant workforce in the mines of Mendip in late medieval and early modern England. Changes in employment rates had little to do with changes in the work psychology of the farmers, as labour intensity remained relatively stable, but was mainly driven by the increasing share of the labour force that relied on mining as their main economic activity. In the water board of Blankenberge, the social profile of unskilled workers assisting the carpenters seem to have undergone similar changes. Until the first half of the fifteenth century, the accounts list a great number of different labourers working very few days per year. Even the most active men, those assisting the carpenters on multiple sites, rarely toiled more than 60 days in any given year (11.4% of the total labour force, see Figure A2.1). Only in the exceptional year of the Black Death, employment rates exceeded one hundred days. Gillis Witvoet, Pieter Bey and Claes Pardoen probably compensated for the lack of labour supply during the mortality crisis, working 133 or 134 days in 1349.[80] When sources become available again, from the last quarter of the fifteenth century, the picture is reversed. The majority of unskilled assistants laboured for more than 60 days (58.1% of the total labour force), with some even working more than the theoretical maximum work year of ca. 250 days (see Figure A2.1). The change in employment rates suggests that the work force professionalised during the fifteenth century. For some, the work they performed for the

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[80] "Wateringen," in *Sint-Jan* (Bruges: OCMW-archief Brugge). box 13.

FIGURE A2.1 DAYS WORKED BY UNSKILLED ASSISTANTS OF CARPENTERS (N=354)
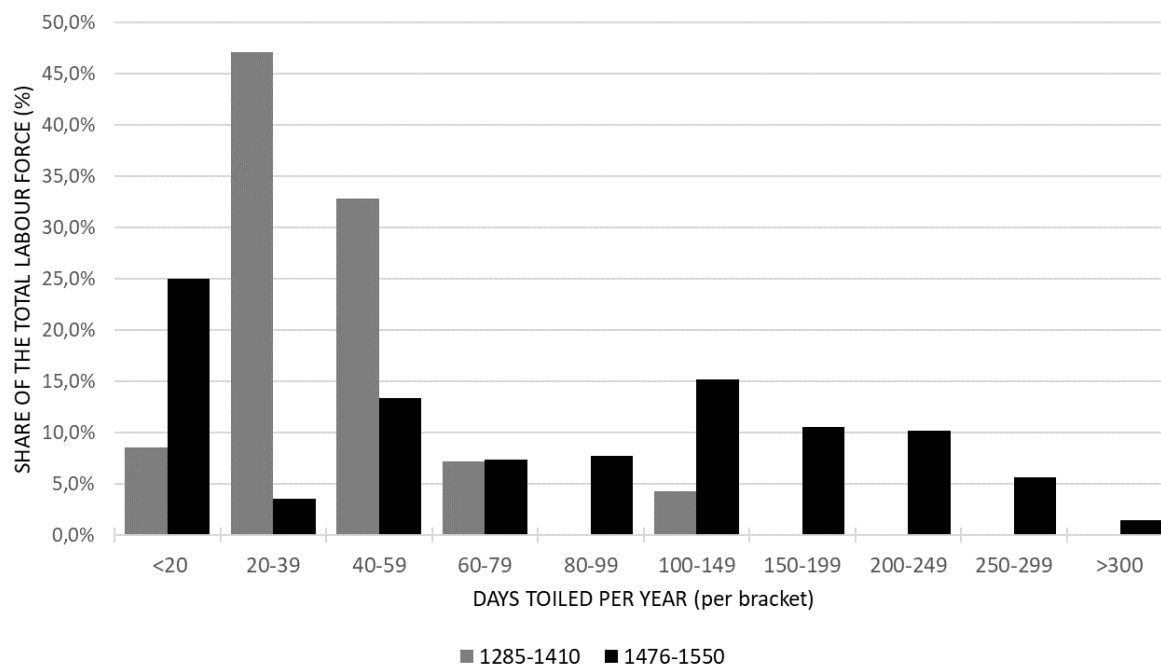
Sources: Gysseling, Maurits, "Corpus Gysseling," Instituut voor Nederlandse taal. Online text collection: http://gysseling.corpus.taalbanknederlands.inl.nl, nrs. 664, 1230, 1329, 1601, 1669; Rekeningen Van De Watering Van Blankenberge, 336-338, Watering van Blankenberge, Rijksarchief Brugge, Bruges; Rekeningen Van De Wateringen, 18-22, A277, Bisshoppelijk Archief Brugge, Bruges; Wateringen, Boxes 10-14, OCMW-archief Brugge, Bruges.

water board now constituted an important part of their annual income whereas before it remained restricted to an irregular by-employment.

The fundamental shift in the social profile of unskilled workers can also be deduced from water taxes. To finance all their activities, water boards regularly taxed all landowners in their jurisdiction based on the amount of land they owned. Unfortunately, no water tax before the middle of the fifteenth century survives for the water board of Blankenberge, but one does exist for the neighbouring water board of Eiesluis for the year 1398. Although covering a smaller territory, the latter institution had a rather similar recruitment policy for unskilled labourers compared to the former, at least for the fourteenth century, boasting several workers with irregular and limited employment (see Table A2.1). When we confront the nearest available accounts (1395 and 1396) with the water tax, we can identify no less than 76% of the named unskilled workers (16 out of 21). This high figure suggests that the water board of Eiesluis preferred to hire on a local basis rather than employing seasonal migrants or full-time labourers from towns. Moreover, by-employment of local farmers was not limited

TABLE A2.1 UNSKILLED WORKERS IN THE WATER TAXES OF FLANDERS

A) Eiesluis: water tax (1398) and accounts of the water board (1395 and 1396)

Name	Days worked	Property size (in ha)	Percentile
Matheeus vanden Bussche	n/a	0.44	18
Jan f. Willems	n/a	0.99	40
Clais Strattin	n/a	1.44	51
Jan f. Jans f. Riquaerds	n/a	1.46	52
Lamsin van Axele	n/a	1.8	58
Pieter Colins	13	2.27	65
Jan f. Wouters f. Baens	3	2.46	67
Maertin Smoud	7	5.67	84
Jan Stratin	n/a	6.01	85
Lauwereins f. Wouters Zeghers	n/a	7.75	88
Wouter Vrank	18	9.34	91
Robrecht de Gloyere	5	9.65	91
Lodewijc f. Jans	n/a	9.67	91
Wouter Colins	n/a	10.17	92
Daneel f. Jacops Weyts	1	14.9	95
Lauwers Scoof	n/a	15.19	96

B) Blankenberge: water tax (1513) and accounts of the water board (1500-1530)

Name	Days worked	Property size (in ha)	Percentile
Jan f. Jan vanden Hove	100	0.31	10
Pieter Kieken	10	0.41	12
Jan Vynck	49	0.76	21
Jan de Meulenare	1	1.65	34
Jan Bus	188	1.85	36

Sources for Eiesluis: Rekeningen Van De Watering Van Eiesluis, Box 11, OCMW-Archief Brugge, Bruges; Verhoofding Eiesluis, A 11, OCMW-archief Brugge, Bruges. For Blankenberge: Rekeningen Van De Watering Van Blankenberge, 336-338, Watering van Blankenberge, Rijksarchief Brugge, Bruges; Ommeloper, 96-100 and 133, Watering van Blankenberge, Rijksarchief Brugge, Bruges.

to those with relatively limited access to land but was socially inclusive. Workers originated from all layers of society (from the 18th to the 96th percentile). Smaller peasants, possessing less than 3 hectares of land, mainly performed manual labour, such as shovelling or filling holes, while larger farmers, possessing more than 5 hectares, also used their carts and horses to transport building materials for the water boards. Again, the image is radically different when we perform the same exercise for our second period. Based on the accounts of the water board of Blankenberge between 1500 and 1530, barely 5% of all named unskilled workers can be identified in a water tax of Blankenberge of 1513. There may be several reasons why some labourers do not show up in the list even though they were local farmers, such as not being the head of the family, possessing only land just outside the jurisdiction or only leasing farmland in it. The difference with the result of Eiesluis is nonetheless striking. It seems improbable that even a significant number of obscured local farmers could explain the large discrepancy, especially when considering the larger territory covered by the water tax of Blankenberge (thirteen villages and ca. 147 km² versus four villages and ca. 90 km² in the water tax of Eiesluis) and considering the greater number of available accounts to check against the tax list (27 for Blankenberge versus 2 for Eiesluis). If we would limit ourselves to the same timeframe as we did for Eiesluis, meaning confronting accounts which were written up three years prior to the water tax, we wouldn't be able to identify any unskilled worker (0 out of 11). Moreover, the few labourers that do show up in both records have a different profile than their colleagues of fourteenth-century Eiesluis. Whereas the latter came from all layers of society, the former clearly belonged to the lower classes (from the 10th to 36th percentile). If these workers represent the more affluent of the unskilled employees, the large proportion of unidentified individuals can simply be explained by their lack of landed property. From the second half of the fifteenth century on, the unskilled workers of the water board of Blankenberge were thus no longer local farmers invested in the protection of their land through their participation in drainage works, but probably full-time wage labourers looking to make ends meet. Such an emergence of a proletarianised labour force fits the evolution of declining labour opportunities in the social agrosystem of Coastal Flanders and the declining interest in water management in the water boards of Flanders in particular as described by Erik Thoen and Tim Soens (see chapter 2.3 Hire and Fire).[81] Based on all the evidence, we have excluded the unskilled workers from our attempt to retrace the evolution of the work year.

The only other groups besides unskilled labourers that are mentioned regularly and in large enough quantities to be analysed, are the carpenters and sawyers since most constructions

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[81] Erik Thoen and Tim Soens, "The family or the farm: a Sophie's choice? The late medieval crisis in Flanders," in *Crisis in the Later Middle Ages. Beyond the Postan-Duby Paradigm*, ed. J. Drendel, The medieval countryside (Turnhout: Brepols, 2015); Tim Soens, *De spade in de dijk? Waterbeheer en rurale samenleving in de Vlaamse kustvlakte (1280-1580)* (Ghent: Academia Press, 2009).

were made from wood. Unfortunately, for the last group, employment rates cannot be reliable calculated as officials only recorded the number of days worked per group of a master sawyer and his assistants. They did not specify the number of assistants helping, let alone the number of days worked by each individual. In contrast, the (semi-)skilled carpenters are always mentioned by name, even when they are still in training as an apprentice, and their employment rates are listed individually. Again, we have plotted the distribution of the days toiled per year for both our periods to explore any fundamental changes in the profile of the workers (see Figure A2.2). This time the two images are rather similar. Notwithstanding some important differences per bracket due to changes in the attitude towards work (see Chapter Two), the water board of Blankenberge seems to have generally employed an equal share of short-term and more permanent employees across the centuries: 44% of all skilled carpenters worked more than half of the year (>150 days) for the water board in the first period compared to 52% in the second. The existence of two clearly different profiles of carpenters has important implications for retracing the evolution of the work year and is the subject of the third paragraph. For now, it suffices to conclude that the representation of both profiles, temporary and permanent employees, seems to be comparable throughout time. There is no structural shift away from one to the other as we have seen for the unskilled assistants.

Identifying skilled carpenters in the water taxes was more difficult compared to the unskilled workers. For each period, we could only find a single match dating maximum three years prior to the tax. In 1398, Jacop Gloyers possessed 4.7 hectares of land in the water board of Eiesluis, which corresponds with the 77th percentile of the distribution. In 1513, Adriaen Stier owned 2.5 hectares in the water board of Blankenberge, which puts him in the 44th percentile.[82] In both cases, the four other carpenters named in the accounts were not listed in the tax records. Expanding the timeframe for Blankenberge based on the available accounts (1500-1530) did not yield any new matches. This suggests that the carpenters did not live and/or invested in the immediate countryside of their workplace. Instead, they mainly lived in the coastal towns. In 1536, one of the permanent carpenters, Maerten Hendrickx, is sent to Oostende to find additional skilled labourers to help in the construction of a new tidal sluice.[83] A poll tax for the town of Blankenberge in 1410 reveals that at least three out of five carpenters named in the accounts of the water board up until three years prior to the taxation were living there. It is unsurprising that the majority of the permanent employees had their residence in this town considering that the central workplace and wood storage of the water board (called *het ambacht*) as well as one of the largest sluices were located just west of it.

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[82]"Verhoofding Eiesluis," in *Sint-Jan* (Bruges: OCMW-archief Brugge); "Ommeloper," (Bruges: Rijksarchief Brugge).

[83] Rekeningen Van De Watering Van Blankenberge, 337, Watering van Blankenberge, Rijksarchief Brugge, Bruges, fol. 25V.

FIGURE A2.2 NUMBER OF DAYS WORKED BY SKILLED CARPENTERS (N=731)
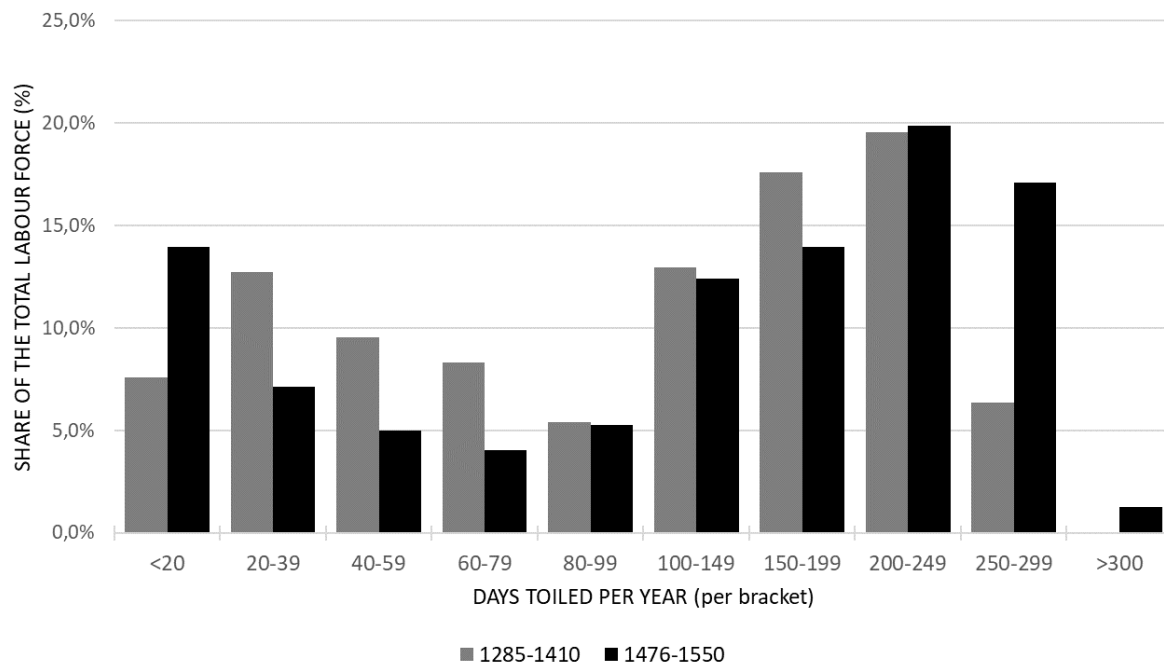
Sources: see figure A2.1

TABLE A2.2 BUILDING CRAFTSMEN AND ENTREPRENEURS IN THE POLL TAX OF THE TOWN OF BLANKENBERGE (1410) AND THE ACCOUNTS OF THE WATER BOARD OF BLANKENBERGE (1407-09)

Name	Occupation	Max. days worked for water board	Tax paid (in d. groot)	Percentile (in %)
Clais Beukels	Carpenter	200 (in 1409)	12	56
Gillis Tinter	Carpenter	2 (in 1407)	24	76
Christiaen Gheraerds	Carpenter	199 (in 1409)	36	81
Wouter Weyts	Supplier	None	84	94
Jan Stelewaert	Contractor	None	96	97

Sources: Bruges, Rijksarchief Brugge, Watering Blankenberge, no. 333; Brussels, Algemeen Rijksarchief, Registers van de rekenkamer, no. 32.156.

Comparing the taxes paid by carpenters of the water board to those by other citizens further indicated that they belonged to the higher middle classes of the town (from the 56th to the 81st percentile). Their position in the water board allowed them to achieve relatively high levels of wealth, yet they do not represent the absolute elites of the building industry in Blankenberge. Wouter Weyts, a supplier of building materials, and Jan Stelewaert, probably a large carpentry contractor, paid both two to eight times more taxes than the aforementioned craftsmen (see Table A2.2). For our second period, we have no knowledge of any surviving poll tax, which makes it impossible to compare the social or, more specifically, financial profile of the skilled carpenters of the water board over time. The lack of increased investment in the immediate countryside at least suggests that their residence and investment strategy did not change.

Whereas taxes can only give us some fragmented information on the social profile of carpenters over time, their surnames are far more revealing. Over half the employees (53%, n=275) had at least one family member who had worked for the same water board. Kinship appears to have played a major role in securing a (full-time) position. Some families were especially successful in passing their position onto the next generation. For example, the Wouters family supplied seven carpenters over one hundred years. Not few of them learned the tricks of the trade from their father or uncle by working next to them as an apprentice in the water board. For example, Pierkin Kindt, the son of carpenter Joos, was recorded among the unskilled assistants of the carpenters in 1517, but gradually saw his wage rate increase together with his expertise and experience. By 1523, he was paid like any other skilled carpenter in the water board.[84] Overall, the hereditary nature of the occupation seems to have been greater in our first period (60% had a relative working for the water board between 1285 and 1410 versus 43% between 1476 and 1550), but the results of the second period are heavily distorted by one year. In 1536-37, many temporary craftsmen were recruited for a short period to complete the construction of a large, new tidal sluice. Excluding this accounting year brings the results more in line (increasing from 43% of the carpenters with a relative having worked for the water board to 52%). Given that most positions went from one relative to another and that those families worked on average fifteen years for the water board, we expect that the social profile of the skilled carpenters is comparable over time.

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[84] The carpenters of the water board were not organised in a formal guild as they were in larger cities, but a training period of five years is in line with the length of an apprenticeship in the carpenters' guild of Ghent, which was set at six years at that time. Johan Dambruyne, *Corporatieve middengroepen : aspiraties, relaties en transformaties in de 16de-eeuwse Gentse ambachtswereld* (Gent : Academia press, 2002), 183.

B. The type of work done and the required skill

In the long run, techniques and materials may change on construction sites, affecting the amount of time or the skills needed to perform certain tasks. In Bruges, houses were increasingly built from stone and especially brick from the thirteenth century onwards, shifting the demand gradually from carpentry towards masonry.[85] In the water board of Blankenberge, such an evolution did not take place during the Late Middle Ages. The vast majority of the waterworks were still built out of wood or, in the case of canals and dikes, fortified with wood.[86] There was certainly some innovation in the design of the different drainage systems, such as the introduction of double-gated sluices, but this didn't require fundamentally new skills from the hired carpenters.[87] The tools and methods to construct the different water works remained relatively stable between the late thirteenth century and the second half of the sixteenth century.

Aside from changing technology and building techniques, the tasks that had to be performed on a construction site may have influenced the required skills and the type of craftsmen hired. For example, a lord probably didn't employ the same craftsmen to build the roofs of his stables as the ones who constructed the more intricate ceilings of his chapel or dining hall. Figure A2.3 plots per task its share of the total days worked by skilled carpenters per accounting year in the water board of Blankenberge for the beginning (1292-1307) and ending (1500-1550) of our period under investigation. The difference in sample size is due to the large gap in available sources between 1307 and 1339. The figure reveals that the variety of work performed was consistent across time. In both samples, skilled carpenters spent the majority or, in some years, all of their labour time on the repair, upkeep and construction of sluices. On average, the craftsmen seemed more preoccupied with the sluices in the first period (94% of total days) than in the second one (73% of total days). There are many reasons imaginable as to why the water board might have invested relatively less labour on its sluices over time, such as the usage of sturdier materials, but the discrepancy between the samples was probably less outspoken in reality than what we find in the sources. The earliest accounts are simply less detailed: whereas later accounts give a detailed description of the tasks performed on a weekly basis, the earlier accounts group all carpentry for every few months under the header of 'work done to the wooden banks (*stadbomen*)'. The general term refers mainly to the reinforced banks of the sluices, but *stadbomen* could also be found in the other constructions, including the dikes, canals and near the bridges. In this sense, the time spent

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[85] J. Dumolyn et al., "The Urban Landscape II: c.1275–c.1500," in *Medieval Bruges: c. 850–1550* ed. A. Brown and J. Dumolyn (Cambridge: Cambridge University Press, 2018), 192-95.

[86] Soens, *De spade in de dijk?*, 154-57.

[87] Petra J. E. M. van Dam, "Ecological Challenges, Technological Innovations: The Modernization of Sluice Building in Holland, 1300-1600," *Technology and Culture* 43, no. 3 (2002): 506-13.

FIGURE A2.3 TASKS PERFORMED BY SKILLED CARPENTERS IN THE WATER BOARD

A) *Between 1292 and 1307 (n=11,098 days)*
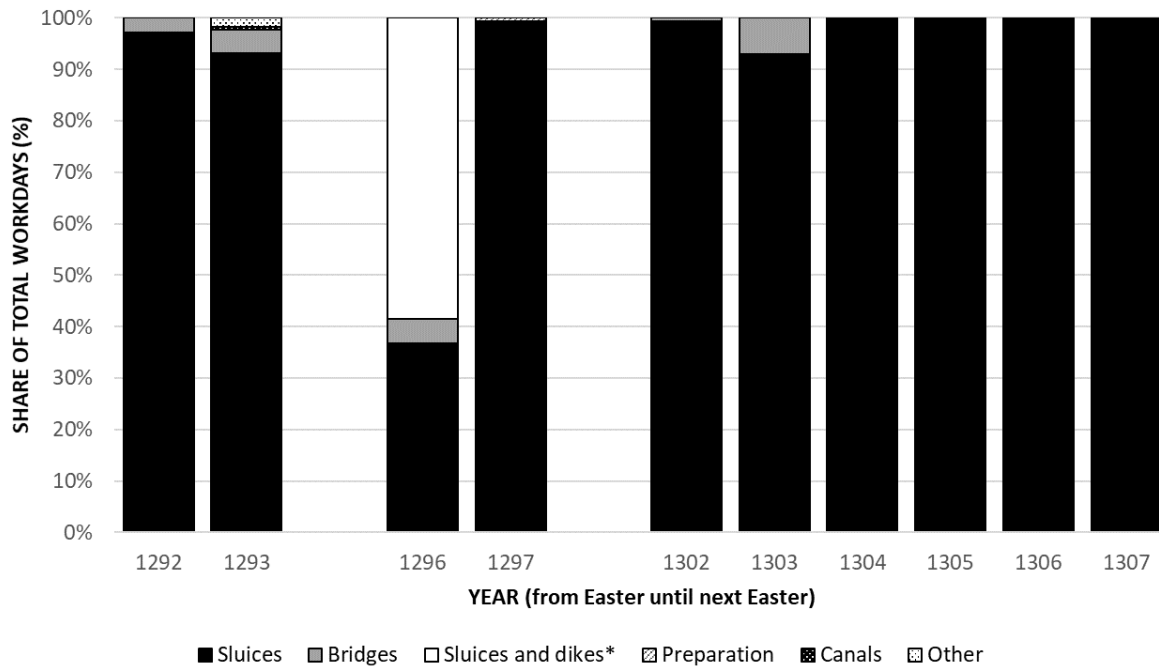
B) *Between 1500 and 1550 (n=65,509 days)*
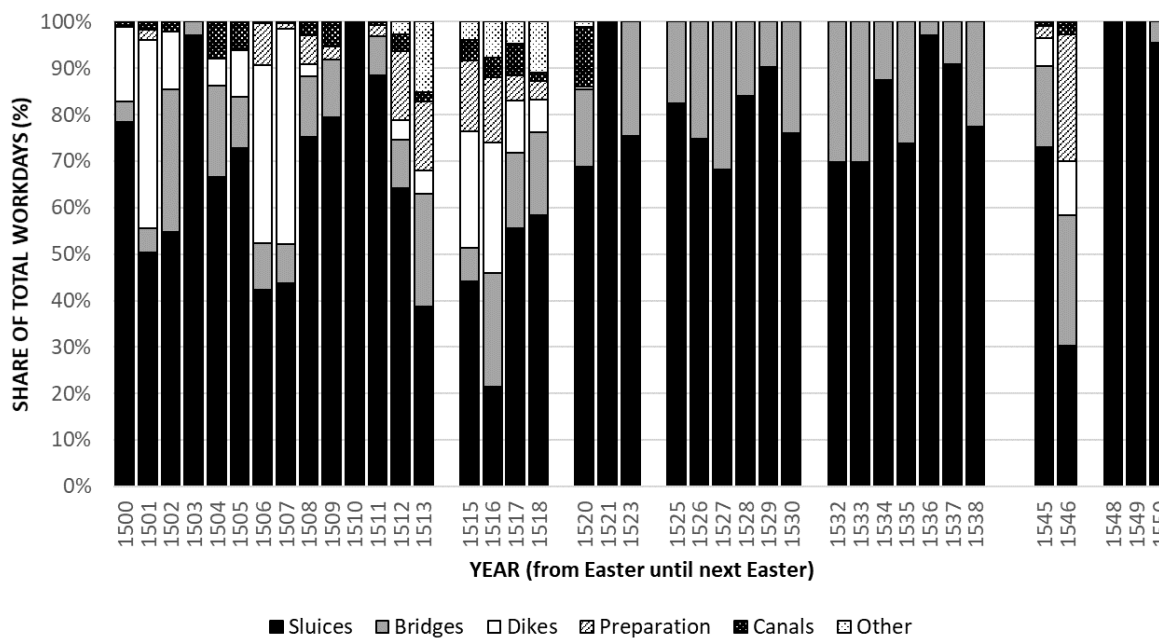
Notes: *The accounting year of 1296 does not specify how many days were spent working on the dikes and how many on the sluices

Sources: see Figure A2.1

on the sluices is probably overestimated for the period between 1292 and 1307. Notwithstanding the lack of details, we do find the occasional mention of other activities in our first sample and they are identical to the ones we find for the last one. Work on the dikes and on the bridges over the plenty waterways constituted a significant share of the labour time (6% of total days in 1297-1307 and 21% in 1500-1550). Because the water board only purchased raw materials, carpenters and sawyers still had to shape the wood to the needs of the job. While this happened mostly on site, some preparation was done in advance at the central workplace, especially when the weather was bad. Carpenters also helped to unload the large shipments of wood coming from the metropole of Bruges. In this sense, the reported category of preparation in Figure A2.3 only counts those explicit cases and its low share (0.02% and 2.6% of total days) is due to the amount of obscured days spent shaping wood on site. Work on the small canals was only a minor part of a carpenter's job (<2% of total days) since most canals were not reinforced with wood. In some rare places the water board installed gutters to ensure proper drainage. The final category groups the odd tasks together. They include for example the few days spent on repairing the doors of the central workplace or the construction of a shed to store wood.

Large fluctuations in the sort of tasks performed and their relative importance can be observed from year to year. The flexibility of the carpenters to carry out different tasks when less time was needed on one or the other category probably allowed them to choose their labour time with some degree of freedom (for a quantitative analysis, see D. Freedom to choose labour time). For the issue at hand, the fluctuation has little consequences. Of all the tasks performed, work on the sluices probably demanded most skills given that it required extensive knowledge on tidal control. Dikes and bridges had no active working parts and only needed to be sturdy. Many of the techniques needed to build or repair a sluice could be applied to these constructions as well. Given that most labour time was spent on the sluices, it is safe to assume that the majority of recruited carpenters would have been able to carry out the tasks of the other categories. It would of course have been possible to recruit less skilled craftsmen for those less common works, but this strategy is not supported by the wage and employment data of the water board. Payment was identical, whether one worked on the bridges, canals, or sluices. Between 1500 and 1550, only three carpenters out of 102 (3%) were never employed at the sluices, while 42 (41%) performed multiple tasks both at and outside the sluices, indicating that there was no specific work force for certain categories. Considering that the different carpenters of the water board seemed to have performed similar types of work both across time and within one year and considering that techniques and technologies did not change much in our period, we can conclude that in addition to the social profile, the professional profile of this group of craftsmen is comparable.

C. The share of total labour time represented by the water board

Before addressing any differences between the employment of carpenters, it is important to ascertain that the accounts recorded the actual number of days worked. The primary concern is that, similar to the city accounts of seventeenth-century London, the listed men were not craftsmen for hire but contractors who, in turn, employed multiple carpenters.[88] If so, real employment rates of the individuals at work are obscured by a payment per day to an intermediate person. For the water board of Blankenberge, this seems highly unlikely for several reasons. First, the wage rates paid to the carpenters are in line with those paid in other small towns and villages in Coastal Flanders, and lower than those paid in the metropoles of Bruges and even the neighbouring town of Blankenberge (see Table A2.3). In a period when most labour was still employed on a direct basis, it seems improbable that all seven different institutions would have worked exclusively with contractors. Table A2.3 therefore suggests that profit margins for contractors would have been too small in the water board to cover the cost of hiring a carpenter and severely lacking to hire multiple. The second reason is that the accounts recorded contractors regularly and identified them clearly. For example, the building of a new sluice in 1407 was conducted by a single contractor and the upkeep of the entire infrastructure of the water board of Blankenberge was outsourced in 1433.[89] In other years, it was more common to hire different contractors for several smaller tasks. They mostly received a lump sum without indication of the time spent on the job, but even when they were paid by the day the accounts clearly recorded that the contractors did not carry out the work (alone). Phrases like 'and his journeymen' or 'together with his servants' clearly set them apart from other employees who were mentioned individually. Third, the references to apprentices in the same lists as the carpenters, such as the case of Pierkin Kindt we mentioned earlier, would make little sense accounting-wise if those craftsmen were contractors. Likewise, it seems illogical that the list of carpenters was always followed by a list of unskilled labourers who had assisted them. If the former had been contractors, they would likely have been responsible to hire their own assistants.

Real employment rates may also have been distorted in the accounts if carpenters were paid for holidays they didn't work, as was the case at Eton College (see Chapter Two). This is difficult to assess because sources only list the number of days worked for every few months or, in the best case, for every week. Reconstructing the maximum number of days worked per week for the most detailed accounts, those of 1545 and 1546, revealed that the workweek

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[88] Judy Z. Stephenson, "'Real' wages? Contractors, workers, and pay in London building trades, 1650–1800," *The Economic History Review* 71, no. 1 (2018).

[89] Soens, spade, note 554

TABLE A2.3 COMMON WAGE RATES OF CARPENTERS IN THE SIXTEENTH CENTURY

Location	Institution	Wage rates paid (in d. gr.)			Ratio (in % of the mode of the water board)
		Min	Max	Mode	
Blankenberge	Water board	8	11	10	n/a
Blankenberge	City	8	18	14	140
Bruges	Religious (n=3)	8	14	11	110
Damme	City	10	10	10	100
Houthave	Abbey	6	10	10	100
Oosteeklo	Abbey	6	12	8	80

Sources: see Appendix 1.1

FIGURE A2.4 MAXIMUM NUMBER OF DAYS WORKED PER WEEK BY CARPENTERS IN 1545-47 (N=105)
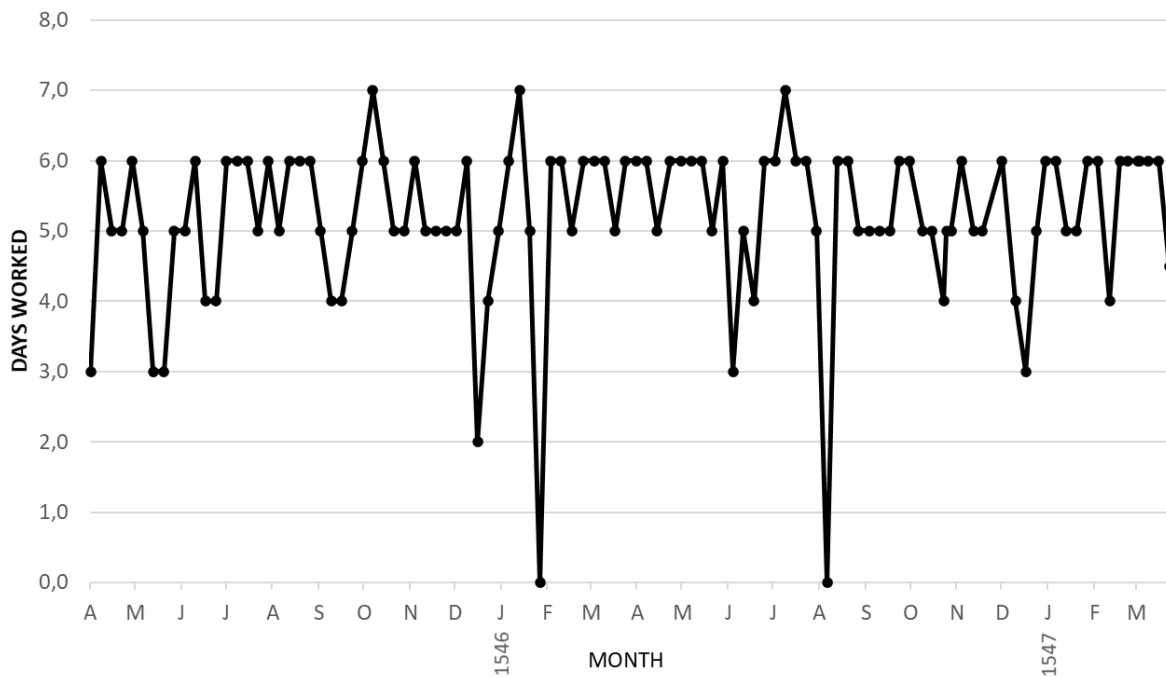
Sources: Rekeningen Van De Watering Van Blankenberge, 338, Watering van Blankenberge, Rijksarchief Brugge, Bruges.

commonly consisted of five or six days (see Figure A2.4), which is consistent with the literature. There are three weeks with seven workdays, but those are exceptional cases (3% of total weeks) when work had to continue due to urgent repairs in combination with the timing of tidal currents. Conversely, there were also weeks with lower employment rates (17% of the total observed weeks). The sample size is too small to discern any structural trends, but industriousness in both accounting years slowed down around the solemnities of Easter, Pentecost, the feast of Saints Peter and Paul (29th June), and between Christmas and New Year. The timing suggests that the water board did not pay for the carpenters' time off during these most important catholic holidays. The remaining weeks with lower employment rates (6% of total) are different in both accounting years and probably not connected to recurring festivities. While this methodology is helpful to identify unpaid holidays, it cannot give us a definitive answer for those who were being paid. There is no list of religious feasts to check our data with. Practices varied from one location to another and there were no strict rules about working on holidays.[90] But perhaps the lack of information doesn't need to be problematic. Historians argue that the average number of holidays in Europe did not change much between the fourteenth and sixteenth century, varying by just a couple of days.[91] If we assume that the bias in the accounts of the water board of Blankenberge to record non-laboured days remained consistent across time, then its impact on the relative evolution of the work year is probably negligible.

As we have seen before, the water board employed both temporary work forces and more permanent carpenters. Evidently, the data for the first group can hardly be representative for employment rates and its evolution over time. The number of days they worked fluctuated strongly from year to year. Moreover, most of them only figure sporadically in the accounts: a quarter of all the skilled carpenters (23.4%) is mentioned in one year. The occasional task for the water board constituted only a minor part of their labour income and is in no way indicative for how successful they were in acquiring additional employment. The data for the second group, that of the more permanently employed craftsmen, is more promising. Half of all carpenters (49.4%) was recorded in five or more accounting years and worked at some point more than 150 days in one year for the water board (47.4%). But how can we be certain that the employment rates of the water board are representative for their total labour time?

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[90] See for example Thijs Lambrecht, "Les fêtes religieuses et le travail dans les Pays-Bas méridionaux, XVIIe et XVIIIe siècles," in *Les temps du travail : normes, pratiques, évolutions (XIVe-XIXe siècles)*, ed. Corine Maitte and Didier Terrier (Rennes: Presses Universitaires de Rennes, 2014); Gerrit Verhoeven, "Fashionably late? Time, work and the industrious revolution in early modern Antwerp (1585–1795)," *Continuity and Change* 35, no. 3 (2020).

[91] Mario García-Zúñiga, "Fêtes chômées et temps de travail en Espagne (1250-1900)," in *Les temps du travail. Normes, pratiques, évolutions (XIVe-XIXe siècles)*, ed. Corine Maitte and Didier Terrier (Rennes: Presses Universitaires de Rennes, 2014); Leonardo Ridolfi, "The French economy in the longue durée. A study on real wages, working days and economic performance from Louis IX to the Revolution (1250-1789)" (PhD thesis, IMT School for Advanced Studies, Lucca, 2016), 88-96.

After all, many of them still had the possibility to find additional work during the weeks they were not toiling for said institution. There are no sources to tell us if and to what extent they did. For example, an increase in the number of days laboured by one carpenter in the water board may be a sign of industriousness, but it can equally hide a leisure preference if he dropped all other activities at the same time.

What we need therefore is a benchmark, a type of worker of who we are fairly certain that his work at the water board constituted virtually all his labour time. Faced with similar challenges, Leonardo Ridolfi took a pragmatic approach and selected the five per cent most assiduous labourers on English construction sites as representative for full-time employment.[92] For the water board of Blankenberge, the accounts offer us an alternative way to identify such workers, one that is more rooted in the historical reality, but in the end comes down to a rather similar result. Although all carpenters were paid by the day, there was always one among them that was considered an official of the institution: the head of the carpenters not only toiled at the different sites but was also responsible to oversee all works in the water boar. Commonly, he recruited and led the equivalent of four full-time carpenters (1053 days were spent on average on carpentry) and an equal number of unskilled assistants, though numbers could peak during certain tasks that needed to be completed quickly and employed many temporary work forces. For example, in 1536, 41 different carpenters were hired to help construct the new sluice. In addition, the head of the carpenters was expected to monitor and safeguard the integrity of the large tidal sluice near the town of Blankenberge at all times.[93] The importance of his job is stressed in a poem written down in the account of 1498, featuring the six most prominent functionaries of the water board. About the head of the carpenter, named Adriaan Stier, the scribe notes:

Adriaen Stier ooc hu lasten zijn groot	Adriaan Stier your burdens are great as well,
want de wateringhe geheel staet op uwen hand	the fate of the water board rests in your hands.
Tes ooc consciencelic ic zeicht hu bloot	It is known, this I fairly tell.
Adriaen Stier ooc hu lasten zijn groot	Adriaan Stier your burdens are great as well.
Int t onsteken van de sluus licht meestden [cloot][94]	Clearing out the sluice of most [sands]
Twater cleen houdend dats tbehoudt vanden landen	Controlling the water safeguards the lands.
Adriaen Stier ooc hu lasten zijn groot	Adriaan Stier your burdens are great as well,
Want de wateringhe gehiel staet op uwen hand	the fate of the water board rests in your hands.

Source: Rekeningen Van De Watering Van Blankenberge, 334, Watering van Blankenberge, Rijksarchief Brugge, Bruges, 1498 title page.

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[92] "The French economy," 108-15.

[93] The office is described as 'the master who safeguards and monitors the sluice (*als meester vanden voorscreven ambochte, de sluis te waerne ende toe te ziene*)' or as 'master of the workmen and the sluice (*meester vande wercmannen vanden voorscreven ambochte ende sluise*). Rekeningen Van De Watering Van Blankenberge, 334, Watering van Blankenberge, Rijksarchief Brugge, Bruges, 1477 Fol. 18R and 1498 Fol. 25V.

[94] The word is unreadable because of the binding of the folio. Given the rhyme scheme (rondeau), it likely ends with *-oot*.

Aside from his daily wages, the head of the carpenters received a fixed sum at the end of each year for these services. This salary was mostly symbolic though, equalling between two and ten daily wages. The real reward for his extra managerial and monitoring tasks was probably the certainty of employment. Indeed, the head of the carpenter was often (in 63% of all the accounts) the most industrious labourer of all and, if not, worked but few days less than the most assiduous one (average difference of 17 days or 7.6%). The only structural exceptions are those years when he was suddenly replaced, probably due to death or illness. In 1532, Jacop Gheerlof had toiled 289 days for the water board, but the next year he only worked the first few weeks for a total of 24 days.[95] The most senior carpenter, Jacop Vos, temporarily took over the vacant position until a suitable successor was found a few weeks later. The certainty of employment also applied to the long-term. On average, the heads of the carpenters worked seventeen years for the water board based on their first and last appearance in the accounts, compared to four years for all carpenters and six and half years for the group of more permanent craftsmen that laboured at least one year over 150 days. A third of the heads of the carpenters even worked for more than 25 years for the institution, representing the majority, if not the entire length, of their professional career.

Given the extent of his work, managing a large team of labourers in an extensive area, and the necessity to be available at all times to organise the repair of the tidal sluice when needed, the head of the carpenters would probably have little opportunities to find additional employment. This is not to say that he couldn't work some small, odd jobs over the year when there was some idle time in the water board. For instance, Pieter Stier constructed a raft for the town of Blankenberge in 1480. However, this kind of by-employment could not have been consistent nor a significant part of his labour time. Pieter only toiled for three days in the town, which doesn't even represent one per cent of his total employment if we add up his days at the water board for that same year. Moreover, the task was closely related to his activities in said institution: the raft was to be used in the same water ways Pieter worked in (*den vlot vanden polderine*). Most tellingly, he did not aid his son who laboured for an additional eleven days on different sites in the town, even when it was a two-man job. In fact, we couldn't identify any other head of the carpenters in the 27 city accounts of the fifteenth century. This is striking because the head of the carpenter was probably one of the most skilful carpenters in the area and because assistant-carpenters of the water board were recorded regularly (20% of the total assistants could be identified in the city accounts). [96] While it is impossible to ascertain the real extent of side jobs due to the lack of sources on the

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[95] Rekeningen Van De Watering Van Blankenberge, 337, Watering van Blankenberge, Rijksarchief Brugge, Bruges

[96] "Stadsrekeningen Blankenberge," in *Registers van de Rekenkamer* (Brussels: Algemeen Rijksarchief Brussel). For the record of Pieter Stier, see accounting year 1480, Fol. 4R.

FIGURE A2.5 COMPARISON OF TRENDS IN THE WORK YEAR OF DIFFERENT GROUPS (N=731)
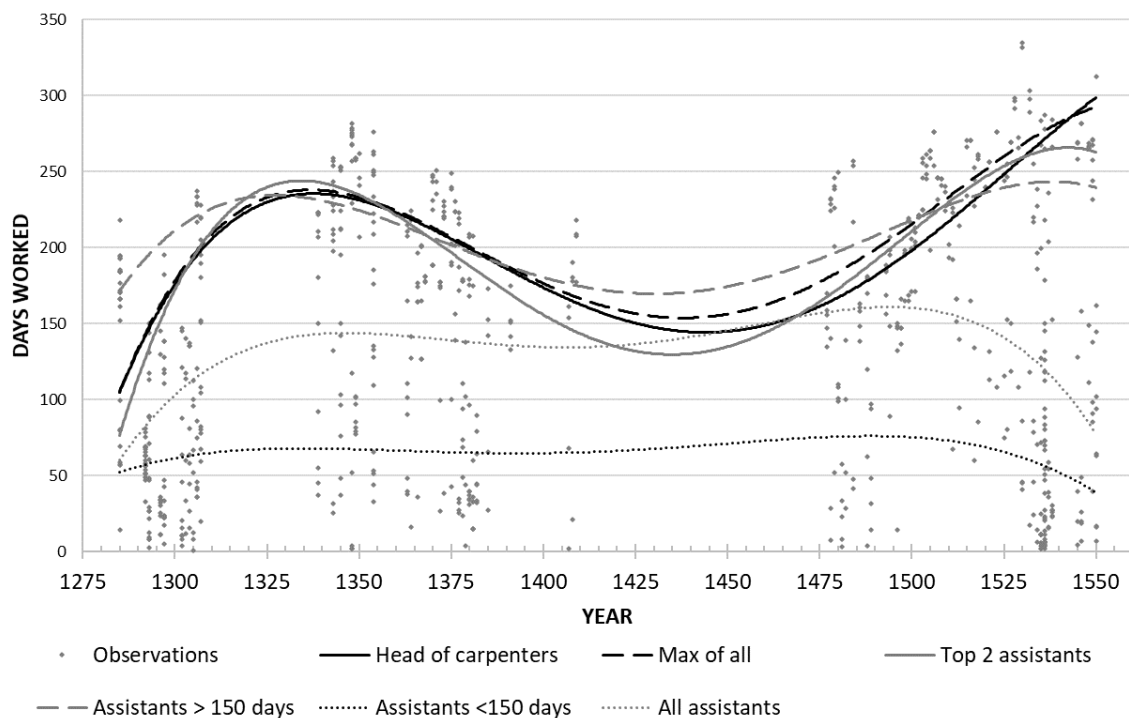
Notes: All trendlines are polynomials of the fourth degree.

private building market, the relative absence of the leading carpenters from the accounts of a regular and nearby employer suggests that their activities in the water board of Blankenberge constituted a very high share of their total labour time. In the context of the Late Middle Ages, when most building labourers had to move from one short project to another, the data for the head of the carpenters is probably one of the best proxies to estimate full-time employment based on the records of a single employer.

To check the robustness of the head of carpenters as our benchmark, we can confront their data with the earlier mentioned methodology of Ridolfi. In Figure A2.5 we compare the trends and order of magnitude (solid black line) with the ones we find for the most assiduous labourers of the water board (dashed black line). To cancel out the effects of the odd year with significantly lower employment figures due to a replacement, warfare, or personal reasons, we have opted to focus on long-term evolutions. We therefore performed a polynomial regression of the fourth degree for each subset of data.[97] The results for the two

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[97] Degree is chosen based on increases in the fit and the trends. On average, the fit still improved by 31% when increasing the degree from three to four, but only an additional 5% when increasing to five degrees. More importantly, increasing the degree did not uncover new long-term trends in the data.

groups are nearly identical, which is unsurprising considering that we have already mentioned the great overlap between them (cfr. supra). It nevertheless confirms the usefulness of our benchmark and allows us to assess to what extent employment rates of other carpenters can be used to estimate the typical work year and assess general changes in the attitude towards work. Analysing the data of all these skilled craftsmen together does not reveal any meaningful trend (dotted black line). The picture is distorted by the large number of temporary employees who toiled but a few days per year. As we have seen in the first section, around half of the carpenters toiled less than half their potential labour time for the water board (<150 days). Indeed, if we split the group based on this threshold, two distinct profiles emerge.[98] For the casual employees, the regression still fails to capture a clear long-term trend (dotted grey line). For the more permanent employees, the evolution is rather similar to that of the head of carpenters (dashed grey line). In some years, the absolute level is higher than that of the other series because the selection criterium of 150 days filters out the few atypical accounting years when everyone worked less than said threshold. We therefore propose a second method to estimate the work year of the more permanent carpenters: based on the number of craftsmen employed by the water board per year, the head of the carpenters needed at least two assistants to maintain the infrastructure. The polynomial regression for these top assistants (solid grey line) shows once again the same patterns over time and its absolute level is similar to the employment rates of the head of the carpenters. In sum, data for both the head of the carpenters and his more permanent assistants seem to be good proxies for full-time labour.

D. Freedom to choose labour time

Although our estimates of the work year seem robust for labourers within the water board of Blankenberge, we need to ascertain that the observed trends are not entirely driven by variables specific to the institution before we can extrapolate our findings to the wider building industry of the area around Bruges. An easy workaround would be to invoke market arbitrage. Following the argument first set out by Gregory Clark and Ysebrand Van Der Werf (see chapter 2.1 Pick a number), we could argue that the annual income offered by the water board to their permanent workers must have been competitive to what carpenters could earn through casual employment elsewhere because they could freely move from one contract to another. Given the similarity in daily remuneration (see Table A2.3), this would imply that the number of days toiled per year would have been similar as well. However, invoking

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[98] The threshold is not only based on the social profile of the labourers. The top 5% employment rates of the head of the carpenters averaged around 300 workdays, which suggest that the employment rates for anyone working more than half that number (150 days) reflect the majority of his labour time.

market arbitrage would be hypocritical in the light of our earlier critique on the usefulness of the concept for the medieval labour markets (see chapter 2.1 Pick a number). Indeed, the guaranteed and long-term employment of the head of the carpenters must have been seen as something highly valuable in a context of irregular job opportunities. In addition, our limited dataset for a single institution does not warrant the application of market arbitrage even if it would have been a feature of the wider building industry, because there is no way to check if the water board was an outlier. An in-depth analysis of the carpenters' reasons to work is therefore needed.

The unpredictability of the sea and weather posed many challenges to the water board. Storm surges or prolonged heavy rainfall could seriously damage the infrastructure: sluice doors were knocked out of their hinges, dikes broke, and bridges collapsed. In such cases, carpenters needed to react and repair immediately, even if it meant working on Sundays or during the night. The head of the carpenters and his main assistants were thus forced to work an unpredictable number of hours per year. Depending on the timing and the extent of the damages, employment rates in the accounts of the water board could severely overestimate the length of a typical work year. Luckily, the accounts clearly distinguished emergency works from the more regular upkeep of the infrastructure. The latter was counted in days, whereas the former group of tasks was always recorded by the number of tides (ca. 6 hours) or nights if they were performed outside the regular working hours (7-12 hours per day, from Monday until Saturday).[99] In most years, the occurrence of irregular work was limited, especially for carpenters: the median of the maximum number of tides and nights worked per year amounted to the equivalent of two and a half days of unpredictable labour for skilled and six days for unskilled labourers. The inclusion or exclusion of this data should therefore have little effect on our estimates of the work year in the long run. For some specific years, employment rates could be heavily distorted however. In one extreme example, Anthonis Clinke, Armand Windt, Jacob Windt and Pieter Smet toiled between 59 and 71 tides to repair the damage and clean the sluice after a series of storms in 1545. Should we add these numbers to our calculations of their employment rates?

Until the middle of the fifteenth century, carpenters only received the equivalent of an unskilled labourer's day wage for emergency repairs. This type of work was probably seen as communal work, a necessary job to safeguard the community of which they were part of. The accounts list dozens of local labourers, including women and even children, who helped carrying materials, clearing out rubble and shovelling sand. In this sense, the carpenters may have perceived their time repairing at night as something separate from their professional job and their labour time would not have included those hours. As we will see, landownership in

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[99] Etienne Scholliers, *Loonarbeid en honger. De levensstandaard in de XVe en XVIe eeuw te Antwerpen* (Antwerp: Uitgeverij De Sikkel, 1960), 92.

TABLE A2.4 SIMPLE LINEAR REGRESSION BETWEEN TIDES/NIGHTS AND DAYS WORKED

A) 1285-1550

	Heads	*Max*	*Main assistants*	*Assistants > 150 days*
N	66	66	133	212
R²	0.015	0.003	0.004	>0.001
p-value	0.327	0.676	0.448	0.955
β coefficient	0.529	0.197	0.314	0.011

B) 1475-1550

	Heads	*Max*	*Main assistants*	*Assistants > 150 days*
N	49	54	116	167
R²	0.055	0.029	0.012	0.021
p-value	0.102	0.214	0.242	0.059
β coefficient	0.473	0.707	0.331	0.463

Sources: see Figure A2.1

the water board gradually became more concentrated in the hands of rich absentee landowners who were less invested in the upkeep of the infrastructure (see chapter 2.3 Hire or fire). Due to the erosion of the communal feeling, emergency repairs were increasingly seen as any other job. Carpenters now received a remuneration comparable to their standard daily wages. This begs the question if tidal and night works had any impact on their regular employment in the water board. On the one hand, if the number of irregularities was high in a year, they might have compensated by reducing their regular labour time. In this case, tides and nights should be added to our employment rates. On the other hand, carpenters may still have perceived them as separate from their normal day job in the water board or as too unpredictable to justify any changes to their work week. Consequently, emergency repairs would not have affected regular labour time and should not be included in our estimates of the work year. To test these two hypotheses, we have performed a simple linear regression between the number of days worked and the number of tides and nights worked for our different sample groups of full-time employees. We did so for both the entire period and the period after 1450 to account for changes in the remuneration and, possibly, in the communal investment. The results are reported in Table A2.4 and are consistent across all groups and across all periods: the correlation between the time spent on emergency works and the number of days worked is extremely weak and not significant. In other words, carpenters did not seem to alter their labour time based on the time they toiled outside regular work hours. For this reason, we believe that the evolutions of night and tidal work do not represent changes in the attitude to work among labourers of the water board and certainly not of those

in the broader building industry. They have been subsequently left out of our estimates of the typical work year.

Expenses for carpentry were not fixed by the water board. The demand for labour fluctuated from year to year, which caused the number of temporary workers to vary greatly. It may also have affected employment rates of the more permanent ones. For our data to be representative of a general attitude towards work, however, the skilled carpenters of the water board may not have simply followed these fluctuations in expenses. They needed to have a certain degree of freedom to choose their work time. Based on the traditional notion of a strong leisure preference (see Chapter Two), we expect that this choice is mainly reflected in the trade-off between leisure and income: real wages and the number of days worked should display a strong negative relationship. To test the impact of the two variables, we have performed a multivariate regression analysis for our different sample groups of full-time employees. Considering the long-term changes in the work year visible in Figure A2.2, we have controlled for three different periods (1285-1349, 1350-1449 and 1450-1550). Since we are interested in explaining general trends and less in the personal levels of employment, we have calculated for every year and every sample group the average number of days worked based on the data of the previous five years. These five-year averages help to cancel out the effects of atypical circumstances both in the supply and demand side. For example, medieval grain markets were highly volatile and price spikes could disproportionally affect our annual real wages. Labourers probably decided their work time based on the accumulation of past experiences and not on the fluctuations in a single year. Alternatively, we could have opted for a multivariate linear mixed model to control for differences between workers. However, our data contains too few repeated observations for most subjects to warrant such a methodology. Moreover, we do not have any information on personal characteristics, such as age or marital status, to help us determine and explain variances in the slopes and intercepts. For all these reasons, averaging our data per year seemed to be the most straightforward and robust approach. Preliminary analysis revealed a clustering of five outliers (>1.5*IQR) in the last quarter of the fifteenth century. Four of them coincide with the Flemish revolt against Maximilian of Austria (1482-1492). The political turmoil seems to have disrupted the normal workings of the water board of Blankenberge: during the conflict, the directors of the board, called *sluismeesters*, were regularly replaced according to the balance of power.[100] To what extent this also affected employment rates is hard to establish, but it is plausible that certain expenses were postponed until more favourable times. Given the clustering of the outliers and the scattered observations in the last quarter of the fifteenth century, we have decided to remove the period from our regression.

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[100] Soens, *De spade in de dijk?*, 192-94.

TABLE A2.5 DETERMINANTS OF THE WORK YEAR (DEPENDENT VARIABLE: NUMBER OF DAYS)

Independent variables	Unstandardised Coefficient Beta (ß)			
	Max	Head	Main assistants	Assistants >150 days
Constant	247.855***	257.282***	228.112***	289.425***
Real Wage (ln, in baskets)	-69.324***	-72.750***	-69.504***	-63.567***
Expenses (in skilled labour)	0.034***	0.031***	0.040***	0.011***
Period (ref. 1285-1349)				
1350-1410	64.9685***	64.189***	63.262***	25.095***
1500-1550	126.740***	117.958***	110.066***	77.593***
	Standardised Coefficient Beta (ß)			
Real Wage (Ln, baskets)	-0.489***	-0.524***	-0.494***	-0.659***
Expenses (skilled labour days)	0.512***	0.474***	0.605***	0.244***
Period (ref. 1285-1349)				
1350-1410	0.660***	0.666***	0.648***	0.378***
1500-1550	1.328***	1.263***	1.163***	1.198***
R^2	0.815	0.731	0.742	0.695
F	128.79***	79.33***	83.99***	61,639***
N	121	121	121	121

Notes: Real wages are calculated by dividing the mode of all wages paid to the carpenters of the water board by the price of the consumption baskets as discussed in appendix 1.4. Main assistants refer to the two most assiduous carpenters who were not appointed as head. ***$p<0.001$, **$p<0.01$, *$p<0.05$.

The results of the multivariate regression are consistent across all groups. Both real wages and the expenses made for carpentry have a significant and large effect on the number of days worked. Overall, they seem to have an equal impact on employment figures, based on the standardised coefficient betas, with the exception of the last sample group. Expenses seemed of less importance if we limit the analysis to the assistants who worked more than 150 days per year (ß=0.244 compared to 0.474 - 0.605 for other groups), probably because the relationship is stronger at lower employment levels: if the budget for carpentry was severely limited, all permanent employees toiled less, but if it surpassed a certain threshold, the work time was less affected. Instead, more temporary labourers were hired. The relationship between wages and the number of days worked is clearly negative, which suggests that a leisure preference was indeed a feature of the late medieval carpenters in the water board of

Blankenberge. The more they earned per day, the less they worked. However, the desired annual income of labour seems to have changed over time. The relationship differs between the three different periods, with carpenters becoming more industrious each period. The implications and possible explanation for these trends are discussed in Chapter Two (see 2.2 Lazy or Industrious?). For now, we can conclude that the more permanent employed labourers of the water board seem to have been reasonable free to choose their labour time, reacting strongly to changes in the daily remuneration.

Having met all four proposed criteria, data for the head of the carpenters, his main two assistants, all assistants who worked more than 150 days, and the most assiduous carpenters, all seem good proxies to estimate evolutions in the work year that are representative for changes in the building industry in the area around Bruges at large.

2.2 Calculation of the work year

The methodology encompasses four different steps:

1. For all carpenters of the water board of Blankenberge, we have recorded the number of days they toiled for the water board. This figure excludes all work done outside regular work time (tides or nights, see Appendix 2.1.D).

2. The accounts run from Easter to Easter following year. Because this holiday occurs on a different date every year, the crude employment rates needed to be adjusted for the varying length of the accounting year. An index number was calculated by dividing the number of days in an accounting year by the average length of a Gregorian calendar year (365.24 days). Next, crude employment rates were multiplied by said index number.

3. For every year, we aggregated data into groups of permanent employers: the head of the carpenters, his two most industrious assistants, all assistants who worked more than 150 days, and the most assiduous carpenter. A polynomial regression of the fourth degree was calculated to assess long-term evolutions (see Table A2.6).

4. The head of the carpenters is seen as most representative for full-time employment. The series is plotted separately in figure 2.1 (see Chapter Two). For the assistants, an interval is plotted based on data for the main assistants and those that worked more than 150 days. The maximum number of days per year are given as a check to the fit of the polynomials. Appendix 2.3 contains the average observed employment rate per group per year.

TABLE A2.6 POLYNOMIAL REGRESSIONS OF THE WORK YEAR

Series	N	R^2	Equation
Max	95	0,4586	$y = -0.00000007x^4 + 0.004x^3 - 8.7587x^2 + 8406,3x - 3,000,000$
Head	95	0,4218	$y = -0.0000006x^4 + 0.0034x^3 - 7.4622x^2 + 7205.1x - 3,000,000$
Main Assistants	190	0,4193	$y = -0.0000001x^4 + 0.0061x^3 - 13.176x^2 + 12581x - 4,000,000$
Assistants >150	264	0,269	$y = -0.0000006x^4 + 0.0032x^3 - 6.8515x^2 + 6516.9x - 2,000,000$

Sources: see Figure A2.1

2.3 Estimates of the work year in the water board of Blankenberge

Decade	Average employment rates (in days per year)			
	Max	Head	Main two assistants	> 150 days
1280	218,2	218,2	194,5	177,6
1290	147,1	146,6	128,4	182,1
1300	167,0	163,4	157,2	210,6
1310				
1320				
1330	222,9	222,9	222,9	210,9
1340	263,1	261,3	261,9	245,3
1350	269,0	251,9	261,2	233,9
1360	203,5	203,3	197,1	190,3
1370	213,9	213,9	201,8	205,3
1380	169,7	169,7	132,6	170,0
1390	174,6	174,6	151,3	151,3
1400	189,9	189,9	166,1	176,9
1410				
1420				
1430				
1440				
1450				
1460				
1470	216,0	209,2	210,2	205,5
1480	163,4	136,6	129,4	191,3
1490	188,1	167,9	183,6	186,8
1500	244,1	225,0	242,4	237,8
1510	236,3	225,7	210,7	224,1
1520	264,4	261,1	213,6	250,4
1530	277,7	269,3	226,4	244,4
1540	272,6	272,1	254,7	250,9

2.4 Expenses on building labourers in the water board of Blankenberge and the city of Bruges

Decade	Expenses (in eq. of skilled daily wages)		Index (1280-1550 = 100)	
	Water board	Bruges	Water board	Bruges
1280	4,200	22,724	327	144
1290	1,253	57,847	97	367
1300	1,044	15,080	81	96
1310		6,226		40
1320				
1330	1,969	14,265	153	91
1340	2,341	8,868	182	56
1350	2,165	15,811	168	100
1360	973	25,213	76	160
1370	1,071	26,498	83	168
1380	705	18,062	55	115
1390	775	18,264	60	116
1400	572	25,275	45	160
1410		9,741		62
1420		9,511		60
1430		12,666		80
1440		7,965		51
1450		7,315		46
1460		8,332		53
1470	1,073	16,496	83	105
1480	559	27,130	43	172
1490	828	5,581	64	35
1500	948	4,744	74	30
1510	679	6,378	53	40
1520	793	19,286	62	122
1530	1,319	14,529	103	92
1540	1,462	13,218	114	84

Notes: Data for the water board refers to expenses for skilled carpenters only, whereas data for the city of Bruges pertains to all building labour cost. For Bruges, we lacked information on labour expenses in 101 years of the total 224 years (45% of total) we had information on total building cost. This was mainly the case for the years after 1460 when the general city accounts become less detailed. Missing values were therefore calculated through a simple linear regression with total building expenses (R^2=0.929, $p < 0.001$).

Sources: For the water board, see Figure A2.1. For Bruges before 1331, see Wyffels, A., Jos De Smet, and A. Vandewalle. *De Rekeningen Van De Stad Brugge, 1280-1319.* 2 vols. Brussels: Paleis der Academiën, 1965-97; for 1331-1499 Sosson, Jean-Pierre. *Lest Travaux Publics De La Ville De Bruges. Xive-Xve Siècles.* Brussels: Crédit communal de Belgique, 1977; for 1500-1550 Stadsrekeningen Van Brugge, series 216, Stadsarchief Brugge, Bruges, 1496-1660.

2.5 Occupational structure according to draft, taxes and repartitions in Bruges

A) Repartition of the gift to Philip IV of France in accordance to the draft list (1297)

Occupation	Sector	Repartition (in d. par.)	Share (in % of total)
Metsers	Building	1800	1.23
Smeden	Building	5040	3.45
Tegeldekkers	Building	2640	1.81
Timmerlieden	Building	8160	5.59
Kaarsengieters	Durables	1032	0.71
Pottenmakers and touwslagers	Durables	480	0.33
Grauwwerker	Fashion	2448	1.68
Handschoenmakers	Fashion	1440	0.99
Huidevetters	Fashion	1440	0.99
Kleermakers	Fashion	2448	1.68
Kortscroder	Fashion	720	0.49
Kousenmaker	Fashion	1200	0.82
Kulkstikkers	Fashion	1920	1.31
Langscroder	Fashion	240	0.16
Oudkleerkopers	Fashion	1920	1.31
Oudschoenmakers	Fashion	3840	2.63
Riemmakers	Fashion	720	0.49
Schoenmaker	Fashion	6720	4.60
Visverkopers	Food	3840	2.63
Vleeschouwers	Food	3840	2.63
Wijntappers	Food	1200	0.82
Barbiers	Health	1200	0.82
Lijskleedwevers	Textile	552	0.38
Linnenwevers	Textile	2448	1.68
Ververs	Textile	3840	2.63
Volders and scheerders	Textile	25440	17.41
Wevers	Textile	49200	33.68
Makelaars	Trade	9600	6.57
Schippers	Transport	720	0.49

Sources: Wyffels, A., Jos De Smet, and A. Vandewalle. *De Rekeningen Van De Stad Brugge, 1280-1319.* 2 vols. Brussels: Paleis der Academiën, 1965-97, vol. 1, 552.

B) Militia lists of campaigns to Kortrijk, Douai and Grevelingen (1302)

| Occupation | Sector | Estimated soldiers | | | Total | Share (%) |
		Kortrijk	Douai	Grevelingen		
Bogenmakers	Arms	0.0	0.0	6.7	6.7	0.16
Metselaars	Building	45.5	0.0	8.9	54.4	1.33
Smeden	Building	89.3	67.3	57.8	214.4	5.26
Tegeldekkers	Building	27.9	16.0	8.9	52.8	1.29
Timmerlieden	Building	72.3	58.4	35.6	166.3	4.08
Zagers	Building	24.5	0.0	13.3	37.9	0.93
Huisversierders	Durables	13.2	0.0	0.0	13.2	0.32
Kaarsengieters	Durables	44.8	22.2	13.3	80.4	1.97
Scheden en tafelmakers	Durables	0.0	4.3	0.0	4.3	0.11
Kulkstikkers	Fashion	44.4	17.3	8.9	70.6	1.73
Beurzenmaker	Fashion	49.2	40.7	13.3	103.2	2.53
Handschoenwerkers	Fashion	34.4	0.0	8.9	43.3	1.06
Huidevetters	Fashion	51.0	36.3	17.8	105.1	2.57
Kleermakers	Fashion	38.9	26.7	17.8	83.4	2.04
Kousenmakers	Fashion	0.0	5.7	6.7	12.4	0.30
lamwerkers	Fashion	42.7	11.1	8.9	62.7	1.54
Oudkleerkopers	Fashion	0.0	21.8	8.3	30.1	0.74
Oudwerkers	Fashion	64.3	0.0	0.0	64.3	1.58
Schoenmakers	Fashion	0.0	53.3	42.2	95.6	2.34
Fruiteniers	food	11.7	8.9	8.9	29.5	0.72
Groentenhandelaars	food	8.5	0.0	0.0	8.5	0.21
Hooikopers	food	8.5	0.0	0.0	8.5	0.21
Molenaars	food	36.0	13.3	13.3	62.7	1.54
Viskopers	food	0.0	0.0	26.7	26.7	0.65
Vissers	food	66.9	44.5	0.0	111.5	2.73
Vleeshouwers	food	99.2	35.9	16.7	151.7	3.72
Wijnschroders en meters	Food	30.1	26.7	20.3	77.1	1.89
Wijntappers	food	19.2	0.0	0.0	19.2	0.47
Barbiers	Health	12.1	11.5	8.9	32.5	0.80
Paternostermakers	Luxury	0.0	0.0	8.9	8.9	0.22
Riem en paternostermakers	Luxury	0.0	8.9	0.0	8.9	0.22
Zilversmeden	Luxury	0.0	3.3	0.0	3.3	0.08
Zilversmeden en zadelaars	Luxury	0.0	0.0	8.9	8.9	0.22
Cardemaker of wolslager	Textile	104.4	0.0	0.0	104.4	2.56
Scheerders	Textile	105.6	98.9	35.6	240.1	5.88
Tapijtwevers en tijkwevers	Textile	39.5	14.1	8.9	62.4	1.53
Ververs	Textile	47.1	34.7	20.0	101.8	2.49

Volders	Textile	255.5	189.6	88.9	533.9	13.09
Wevers	Textile	375.7	245.7	131.1	752.5	18.44
Makelaars	Trade	163.1	97.2	75.6	335.9	8.23
pijnders	Transport	0.0	17.8	0.0	17.8	0.44
Schippers	Transport	41.1	23.0	8.9	72.9	1.79

Notes: The number of soldiers are estimated according to the ratios to the recorded number of horses as given by Prevenier, W. "Bevolkingscijfers En Professionele Strukturen Der Bevolking Van Gent En Brugge in De 14de Eeuw." In *Album Charles Verlinden*, 269-303. Gent: Belgisch centrum voor landelijke geschiedenis, 1975, 286.

Sources: Wyffels, A., Jos De Smet, and A. Vandewalle. *De Rekeningen Van De Stad Brugge, 1280-1319*. 2 vols. Brussels: Paleis der Academiën, 1965-97, vol. 1.

C) Militia list for the naval campaign (1316)

Occupation	Sector	Voud	Share (%)
Timmerlieden	Building	18	3.33
Smeden	Building	24	4.44
Metsers	Building	19	3.51
Kaarsgieters	Durables	18	3.33
Kuipers	Durables	12	2.22
Cordewaniers	Fashion	20	3.70
Huidevetters	Fashion	16	2.96
Oudgrauwwerkers	Fashion	16	2.96
Oudkleerkopers	Fashion	15	2.77
Kleermakers	Fashion	16	2.96
Beurzenmakers	Fashion	6	1.11
Handschoenmakers	Fashion	16	2.96
Vleeshouwers	Food	24	4.44
Vissers	Food	16	2.96
Wijnschroders	Food	20	3.70
Korenmeters	Food	4	0.74
Bakkers	Food	16	2.96
Wevers	Textile	112	20.70
Volders	Textile	64	11.83
Wolscheerders	Textile	40	7.39
Ververs	Textile	17	3.14
Makelaars	Trade	32	5.91
Poorters	Poorterij	59	Excl.

Sources: Verbruggen, J.F. "De Organisatie Van De Militie Te Brugge in De Xive Eeuw." *Annales de la Société d'Emulation de Bruges* 87 (1950): 163-70.

D) Militia list for the ten campaigns (1338-1340)

Occupation	Sector	Soldiers	Share (%)
Zwaardvegers	Arms	45	0.72
Bogenmakers	Arms	24	0.38
Smeden	Building	190	3.04
Timmerlieden	Building	197	3.15
Metsers	Building	107	1.71
Tegeldekkers	Building	37	0.59
Plaatseraars	Building	26	0.42
Strodekkers	Building	43	0.69
Zagers	Building	29	0.46
Loodgieters	Building	13	0.21
Kaarsgieters	Durables	65	1.04
Kuipers	Durables	59	0.94
Wielwerkers	Durables	24	0.38
Draaiers	Durables	53	0.85
Schrijnwerkers	Durables	44	0.70
Tinnenstoopmakers	Durables	28	0.45
Pottenmakers	Durables	27	0.43
Kulkstikkers	Fashion	87	1.39
Schoenmakers	Fashion	274	4.38
Oudkleerkopers	Fashion	184	2.94
Kleermakers	Fashion	197	3.15
Huidevetters	Fashion	95	1.52
Handschoenmakers	Fashion	62	0.99
Lammijnwerkers	Fashion	55	0.88
Oudgrauwwerkers	Fashion	72	1.15
Dobbers	Fashion	52	0.83
Beurzenmakers	Fashion	57	0.91
Witledertouwers	Fashion	33	0.53
Zwartledertouwers	Fashion	37	0.59
Kousscheppers	Fashion	26	0.42
Hoedenmakers	Fashion	27	0.43
Vleeshouwers	Food	249	3.98
Vissers	Food	141	2.25
Bakkers	Food	161	2.57
Molenaars	Food	68	1.09
Fruitiers	Food	42	0.67
Wijnmeters	Food	77	1.23

Wijnschroders	Food	32	0.51
Baardmakers	Health	49	0.78
Riem, scheden en paternostermakers	Luxury	96	1.54
Zilversmeden	Luxury	54	0.86
Beelden en zadelmakers	Luxury	61	0.98
Wevers	Textile	1016	16.25
Volders	Textile	669	10.70
Wolscheerders	Textile	360	5.76
Ververs	Textile	123	1.97
Tijkwevers	Textile	79	1.26
Tapijtwevers	Textile	46	0.74
Wolslagers	Textile	33	0.53
Touwslagers	Textile	21	0.34
Wiltwerkers	Textile	21	0.34
Makelaars	Trade	431	6.89
Schippers	Transport	155	2.48

Sources: Verbruggen, J.F. "De Organisatie Van De Militie Te Brugge in De Xive Eeuw." *Annales de la Société d'Emulation de Bruges* 87 (1950): 163-70.

E) Poll tax (1394-96)

Occupation	Sector	Households	Share (%)
Bogenmakers	Arms	2	0.24
Wapenmakers	Arms	6	0.72
Loodgieters	Building	3	0.36
Metselaars	Building	16	1.93
Pleisteraars	Building	6	0.72
Smeden	Building	34	4.09
Stro en tegeldekkers	Building	22	2.65
Timmerlieden	Building	22	2.65
Zagers	Building	6	0.72
Schrijnwerkers	Durables	13	1.56
Draaiers	Durables	11	1.32
huisversierders	Durables	0	0.00
Kaarsenmakers	Durables	17	2.05
Kuipers	Durables	65	7.82
Pottenmakers	Durables	3	0.36
Tinnegieters	Durables	6	0.72
Touwslagers	Durables	4	0.48

Waslichtmakers	Durables	6	0.72
wielwerkers	Durables	7	0.84
Zeepzieders	Durables	1	0.12
Kulkstikkers	Fashion	0	0.00
Oudkleerkopers	Fashion	13	1.56
Beurzen en handschoen	Fashion	23	2.77
Grauwwerkers	Fashion	9	1.08
Hoedenmakers	Fashion	9	1.08
Kleermakers	Fashion	26	3.13
Kousenmakers	Fashion	9	1.08
Lamwerkers	Fashion	6	0.72
Oudgrauwwerkers	Fashion	5	0.60
Schoenmakers	Fashion	10	1.20
Wiltwerkers	Fashion	8	0.96
Huidenvetter	Fashion	6	0.72
Leertouwer van spaans leer	Fashion	6	0.72
Riem en schedemakers	Fashion	21	2.53
Witledertouwers	Fashion	1	0.12
Zwartledertouwers	Fashion	2	0.24
Fruithandelaars	Food	8	0.96
Groentenhandelaars	Food	0	0.00
Korenhandelaars	Food	5	0.60
Kruideniers	Food	23	2.77
Medehandelaars	Food	9	1.08
Vishandelaars	Food	6	0.72
Zuivelhandelaars	Food	1	0.12
Bakkers	Food	27	3.25
Broodwegers	Food	10	1.20
Molenaars	Food	11	1.32
Vissers	Food	0	0.00
Vleeshouwers	Food	26	3.13
Wijnlossers en meters	Food	16	1.93
Barbiers	Health	5	0.60
Reiniging	Health	9	1.08
Beelden en zadel	Luxury	11	1.32
Zilversmeden	Luxury	7	0.84
Lakenhandelaars	Textile	51	6.14
Linnenhandelaars	Textile	5	0.60
Wolslagers	Textile	7	0.84
Scheerders	Textile	17	2.05
Taptijt en tijkwevers	Textile	24	2.89

Ververs	Textile	9	1.08
Volders	Textile	28	3.37
Wevers	Textile	42	5.05
Makelaars	Trade	23	2.77
Hooikopers	Trade	0	0.00
Merseniers	Trade	31	3.73
Pijnders	Transport	2	0.24
Schippers	Transport	11	1.32
Veerlieden	Transport	3	0.36

Sources: De Meyer, Ingrid. "De Sociale Strukturen Te Brugge in De 14de Eeuw." In *Studiën Betreffende De Sociale Strukturen Te Brugge, Kortrijk En Gent in De 14e En 15e Eeuw*, edited by W. P. Blockmans, Ingrid De Meyer, J. Mertens, C. Pauwelyn and W. Vanderpijpen. Heule: UGA, 1971.

F) Militia list for the campaign against the English (1411)

Occupation	Sector	Payment (in d. gr.)	Share (%)
Boogmakers	Arms	217	0.68
Wapenmakers	Arms	217	0.68
Loodgieters	Building	72	0.23
Metselaars	Building	1013.5	3.17
Plaatseraars	Building	72	0.23
Smeden	Building	1158	3.62
Strodekkers	Building	72	0.23
Tegeldekkers	Building	289.5	0.90
Timmerlieden	Building	1520	4.75
Zagers	Building	144.66	0.45
Draaiers	Durables	289.5	0.90
kaarsenmakers	Durables	362	1.13
Kuipers	Durables	651.5	2.04
Potters	Durables	72	0.23
Schrijnwerkers	Durables	289.5	0.90
Tinnenstoopmakers	Durables	217	0.68
Touwslagers of linemakers	Durables	72	0.23
Wielwerkers	Durables	144.66	0.45
Beurzenmakers en witledertouwers	Fashion	289.5	0.90
Dobberers	Fashion	289.5	0.90
Grouwwerkers	Fashion		0.00
Handschoenmakers	Fashion	217	0.68
Hoedenmakers	Fashion	72	0.23
Huidevetters	Fashion	651.5	2.04

Kleermakers	Fashion	1737.5	5.43
Kordewanier	Fashion	1013.5	3.17
Kousenmakers	Fashion	72	0.23
Kulkstikkers	Fashion	362	1.13
lamwerkers	Fashion	217	0.68
Oudgrauwwerkers	Fashion	362	1.13
Oudklederkopers	Fashion	651.5	2.04
Riemmakers	Fashion	217	0.68
Schedemakers	Fashion	72	0.23
Wiltwerkers	Fashion	362	1.13
Zwartledertouwers	Fashion	217	0.68
Bakkers	Food	868.66	2.72
Fuithandelaars	Food	144.66	0.45
Molenaars	Food	289.5	0.90
Viskopers	Food	579	1.81
Vleeshouwers	Food	1086	3.39
Wijnmeters	Food	289.5	0.90
Wijnschroders	Food	144.66	0.45
Barbiers	Health	289.5	0.90
Beeldenmakers en zadelaars	Luxury	506.66	1.58
Paternostermaker	Luxury	434	1.36
Zilversmeden	Luxury	434	1.36
Poorterij	Poorterij	5501.33	17.20
Linnenwevers of tijkwevers	Textile	506.66	1.58
Scheerders	Textile	1086	3.39
Tapijtwevers	Textile	72	0.23
Ververs	Textile	434	1.36
Volders	Textile	1086	3.39
Wever	Textile	1086	3.39
Wolslagers	Textile	217	0.68
Makelaars	Trade	2316.66	7.24
Schippers	Transport	941	2.94

Sources: Stadsrekeningen Van Brugge, series 216, Stadsarchief Brugge, Bruges.

2.6 Occupations of new citizens according to the *poortersboeken* of Bruges

| Decade | New citizens per sector | | | | | | | | | | | | Unknown |
	Arms	Building	Diverse	Durables	Fashion	Food	Health	Luxury	Services	Textile	Trade	Transport	
1310	0	3	0	2	6	8	0	2	2	10	7	4	185
1320	-	-	-	-	-	-	-	-	-	-	-	-	-
1330	3	16	0	27	33	6	1	10	5	12	6	5	754
1340	4	37	1	53	126	74	11	17	17	106	15	48	885
1350	1	9	0	18	52	3	5	7	2	10	4	11	473
1360	6	17	0	43	126	33	5	23	12	82	10	21	822
1370	0	5	0	5	8	3	0	1	2	12	0	3	608
1380	0	0	0	0	4	1	0	1	2	2	0	3	299
1390	0	2	0	2	2	0	0	0	0	0	0	0	502
1400	0	2	0	1	1	0	0	1	6	2	0	0	744
1410	0	1	0	4	3	1	1	2	6	1	0	0	496
1420	6	38	0	23	103	37	5	20	37	22	6	8	1957
1430	2	24	1	10	131	35	8	11	20	19	4	10	1076
1440	12	95	181	67	252	133	28	56	23	68	7	30	1564
1450	2	7	9	2	12	8	1	1	7	19	0	1	1270
1460	0	3	6	5	8	3	1	0	2	0	0	1	1500
1470	6	28	114	20	76	26	0	8	16	51	15	6	886
1480	7	53	466	44	129	43	11	23	29	137	7	7	13
1490	2	6	109	12	48	43	10	6	5	27	1	3	120

Sources: Jamees, A. *Brugse Poorters. Opgetekend Uit De Stadsrekeningen En Ingeleid Door A. Jamees. Assistent Bij Het Rijksarchief Te Antwerpen.* Hamdzame: Uitgaven Familia et Patria, 1974; Parmentier, R.A. *Indices Op De Brugsche Poorterboeken.* Brugge: Desclée De Brouwer, 1938.
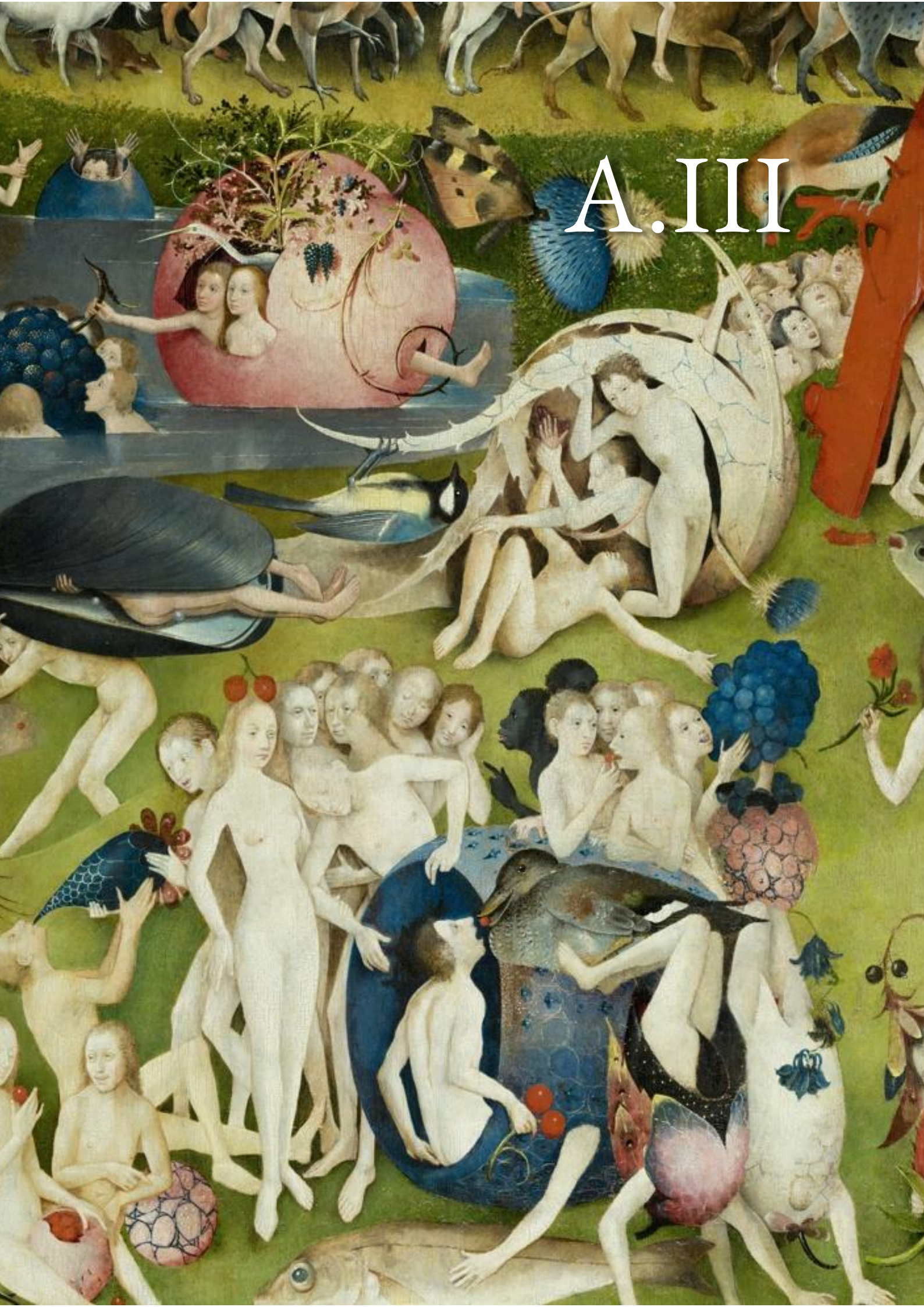
A.III

Occupational sectors and their fiscal capacity

3.1 Occupations per sector

Name (Dutch)	Name (English)	Sector
Visser	Fisherman	Agriculture and fishery
Tuinier	Gardener	Agriculture and fishery
Maaier	Harvester	Agriculture and fishery
Jager	Hunter	Agriculture and fishery
Veehoeder	Livestock farmer	Agriculture and fishery
Ploeger	Ploughman	Agriculture and fishery
Veldopzichter	Rural supervisor	Agriculture and fishery
Schapenhoeder	Shepherd	Agriculture and fishery
Varkenshoeder	Swineherd	Agriculture and fishery
Wijnmaker	Winemaker	Agriculture and fishery
Steenbakker	Brick maker	Building and raw materials
Timmerman	Carpenter	Building and raw materials
Graver	Digger	Building and raw materials
Metser	Mason	Building and raw materials
Plasteraar	Plasterer	Building and raw materials
Tegeldekker	Roofer	Building and raw materials
zager	Sawyer	Building and raw materials
Steenhouwer	Stonecutter	Building and raw materials
Strodekker	Thatcher	Building and raw materials
Tegelaar	Tiler	Building and raw materials
Houthakker	Woodcutter	Building and raw materials
Aalmoezenier	Chaplain	Clerks and officials
Klerk	Clerk	Clerks and officials
Advocaat	Lawyer	Clerks and officials
Procureur	Prosecutor	Clerks and officials
Belastinginner	Tax collector	Clerks and officials
Mandenmaker	Basket weaver	Durables
Koperslager	Brazier	Durables
Kaarsenmaker	Candler	Durables
Kistenmaker	Coffrer	Durables
Vatenmaker	Cooper	Durables
Ketelmaker	Copper smith	Durables

Name (Dutch)	Name (English)	Sector
Serviesmaker	Cutler	Durables
Hoevensmid	Farrier	Durables
Gareelmaker	Girdler	Durables
Messenmaker	Knife smith	Durables
Lampenmaker	Lamp maker	Durables
Slotenmaker	Locksmith	Durables
Pottenbakker	Potter	Durables
Zadelmaker	Saddler	Durables
Ijzersmid	Smith	Durables
Wagenmaker	Wheelwright	Durables
Houtdraaier	Woodturner	Durables
Valkenier	Falconer	Entertainment
Ministreel	Minstrel	Entertainment
Beurzenmaker	Burser	Fashion
Broekenmaker	Chaucer	Fashion
Schoenlapper	Cobbler	Fashion
Kordewanier	Cordwainer	Fashion
Borduurder	Embroider	Fashion
Handschoenmaker	Glover	Fashion
Schedemaker	Sheather	Fashion
Kleermaker	Tailor	Fashion
Bakker	Baker	Food processing
Brouwer	Brewer	Food processing
Slager	Butcher	Food processing
Kaasmaker	Cheese maker	Food processing
Ovenmeester	Oven master	Food processing
Barbier	Barber	Health
Leerbewerker	Leather worker	Leather production
Leerlooier	Tanner	Leather production
Bontwerker	Furrier	Luxury
Goudsmid	Gold smith	Luxury
Schilder	Painter	Luxury
Beeldhouwer	Sculptor	Luxury
Houtsnijder	Wood sculptor	Luxury
Boogschutter	Archer	Military
Harnassenmaker	Armour smith	Military
Sergeant	Sergeant	Military
schildknaap	Squire	Military
wachter	Watchman	Military

Name (Dutch)	Name (English)	Sector
Wapensmid	Weapon smith	Military
Bankier	Banker	Money
Munter	Coiner	Money
Wisselaar	Exchanger	Money
Kippenverkoper	Chicken merchant	Retail and sales
Oudkleerkoper	Fripperer	Retail and sales
Fruitverkoper	Fruit merchant	Retail and sales
Verkoper	Merchant	Retail and sales
Spijkerverkoper	Nail merchant	Retail and sales
Wasverkoper	Wax merchant	Retail and sales
Schoonmaker	Cleaner	Services
Hostesse	Hostess	Services
Herbergier	Innkeeper	Services
Bode	Messenger	Services
Knecht	Servant	Services
Leermeester	Teacher	Services
Wasser	Washer	Services
Kaarder	Carder	Textile production
Lakensnijder	Cloth cutter	Textile production
Touwmaker	Corder	Textile production
Verver	Dyer	Textile production
Volder	Fuller	Textile production
Naaldenmaker	Needler	Textile production
Scheerder	Shearer	Textile production
Spinner	Spinner	Textile production
Wever	Weaver	Textile production
Lakenhandelaar	Cloth trader	Trade
Houthandelaar	Wood trader	Trade
Wagenmenner	Charioteer	Transportation
Veerman	Ferryman	Transportation
Kruier	Porter	Transportation
Schipper	Skipper	Transportation
Arbeider	Manual labourer	Undefined

3.2 Relative fiscal capacity of occupational sectors in capitals

A) Florence (1427)
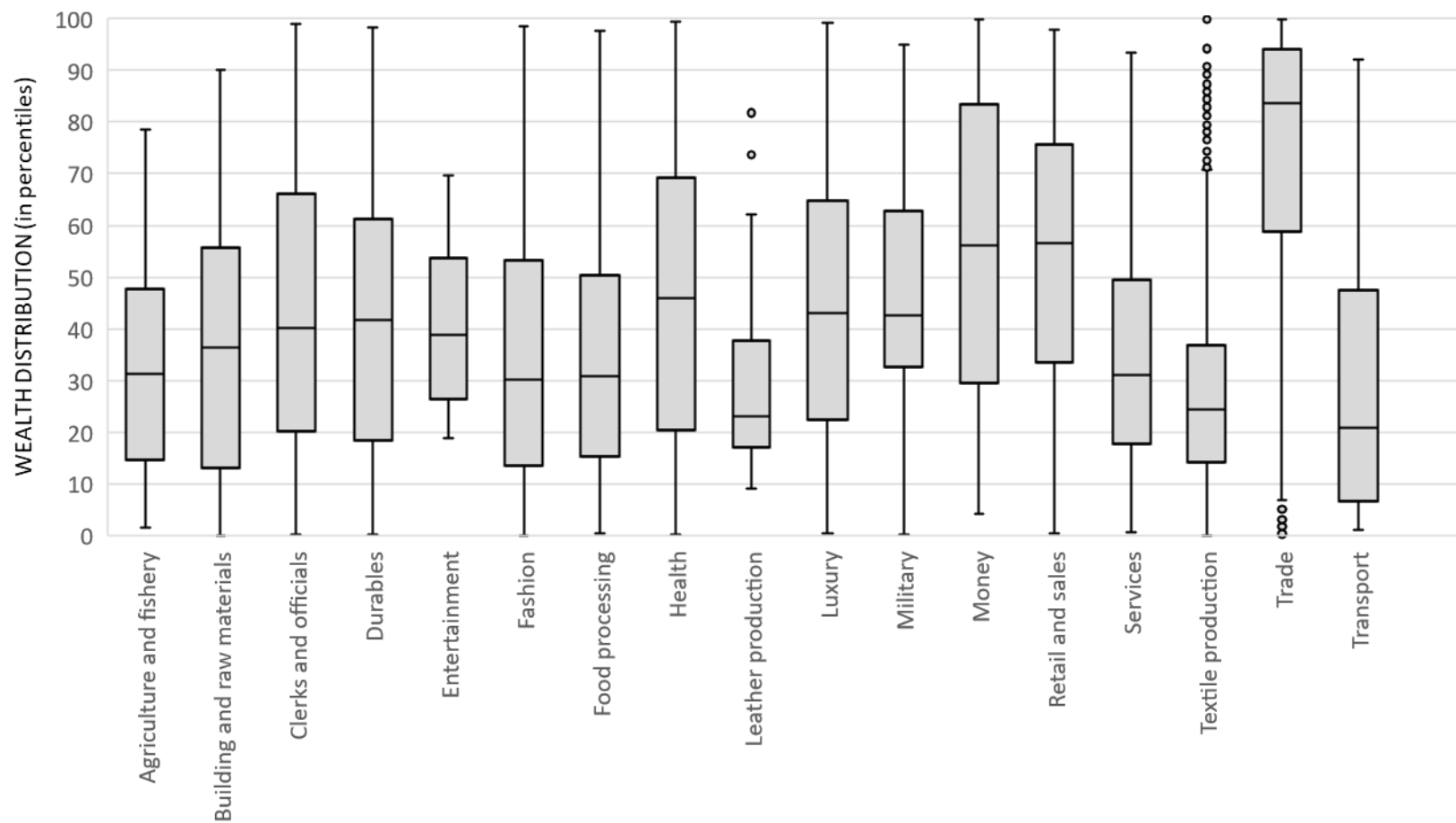
B) Mons (1365)
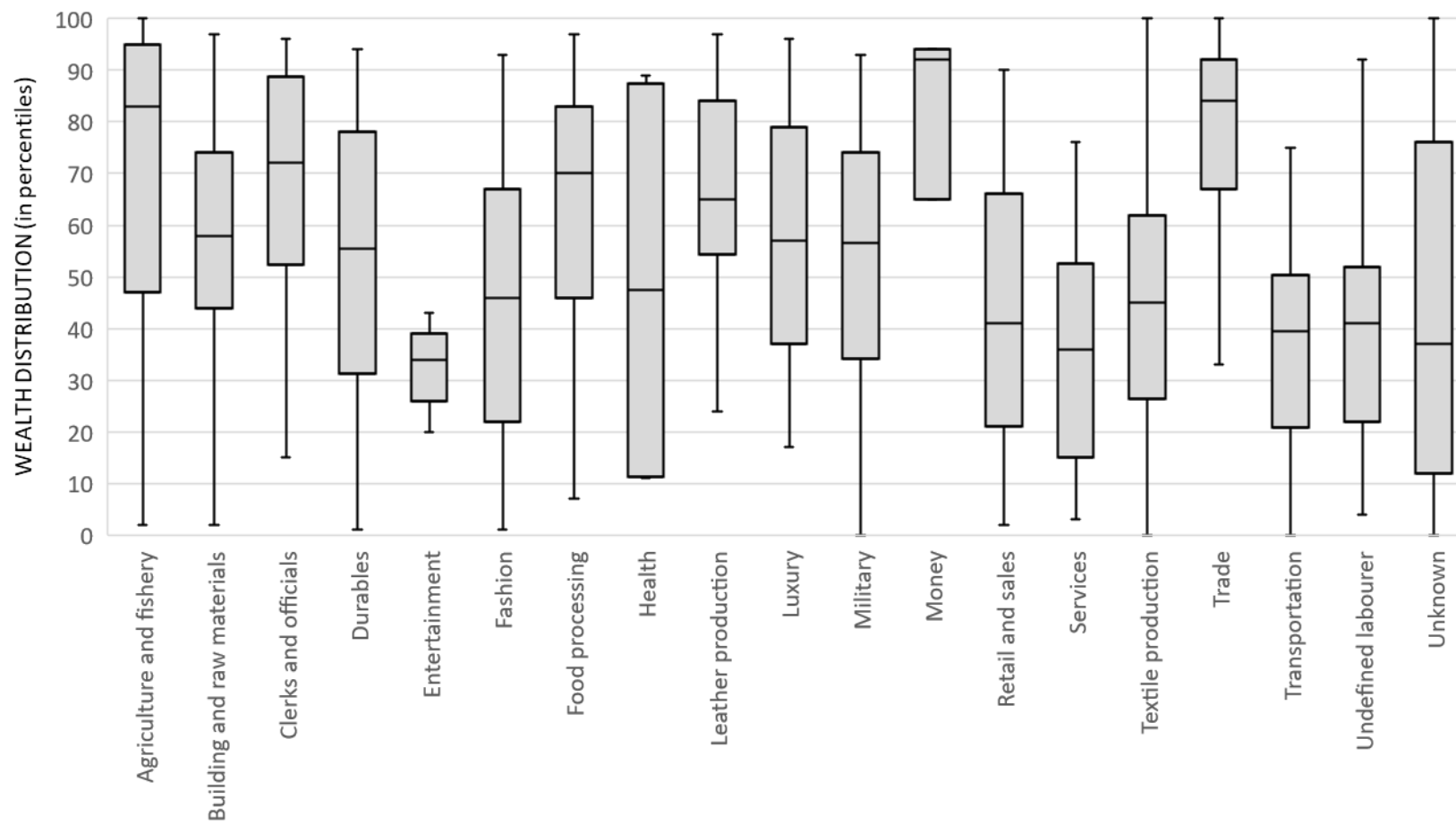
Sources: Heupgen, Paul. "Le Rôle De La Taille De Mons De 1365." *Annales du cercle archéologique de Mons* 55 (1937): 41-95.

C) Bruges (1394)

WEALTH DISTRIBUTION (in percentiles)

Categories (x-axis): Building and raw materials, Durables, Fashion, Food processing, Leather production, Luxury, Services, Textile production, Trade
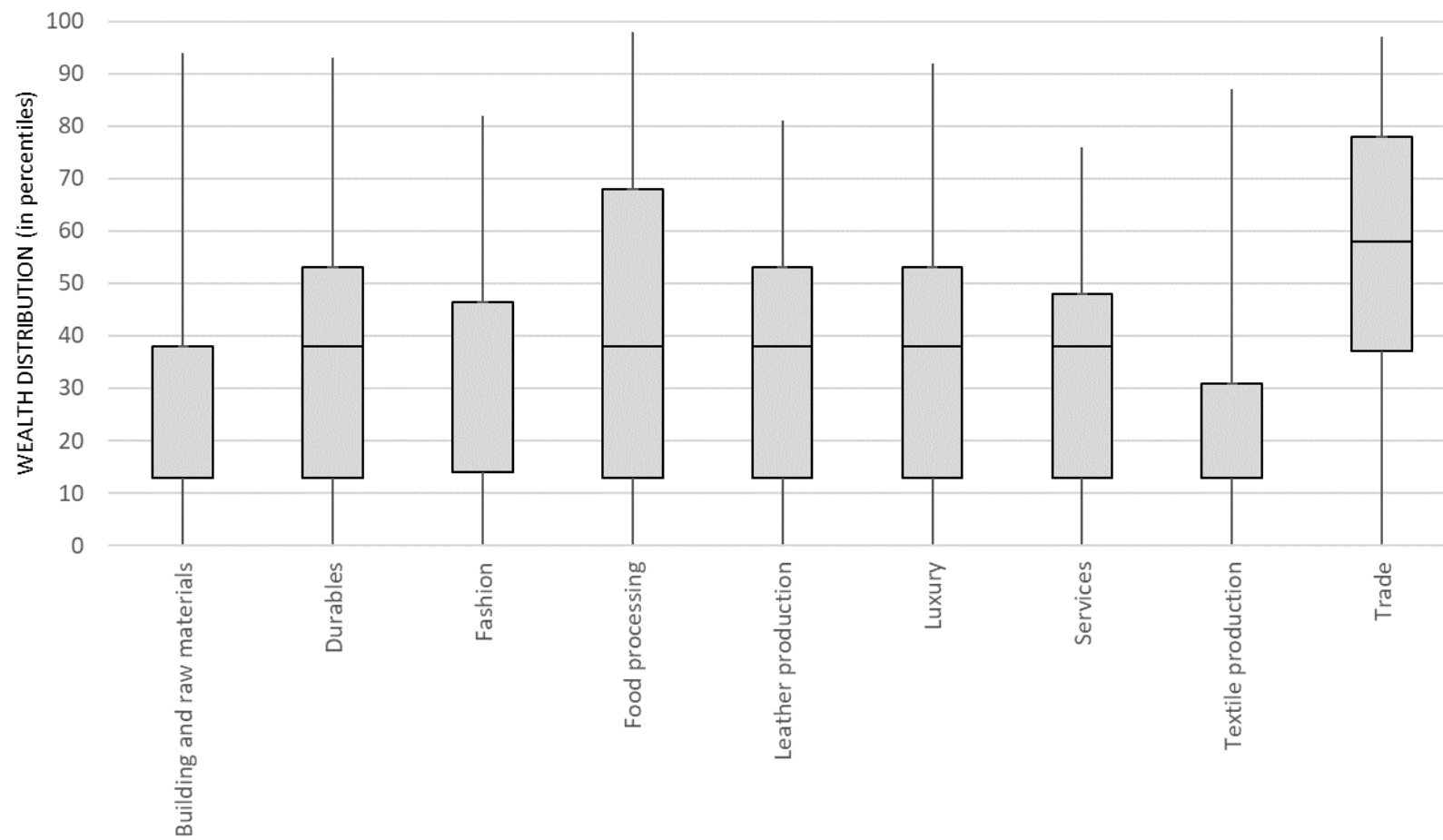
Sources: Stabel, Peter. *A Capital of Fashion. Guilds and Economic Change in Late Medieval Bruges*. Oxford: Oxford University Press, forthcoming.

3.3 Regression analysis of the fiscal position of building workers in Flanders

Variables	Unstandardised coeff.		Standardised coeff. Beta	t	Sig.
	B	Std. Error			
(Constant)	-11.998	31.354		-0.383	0.702
Period	-3.134	4.408	-0.143	-0.711	0.478
Wage	10.463	4.700	0.214	2.226	0.027*
Worker type (ref. entrepreneur)					
Unskilled	-45.470	3.332	-0.642	-13.648	0.000***
Skilled	-22.226	2.825	-0.369	-7.867	0.000***
City size (taxed households)	0.000	0.006	-0.008	-0.062	0.951
Location (ref. Diksmuide)					
Damme	-25.696	16.595	-0.178	-1.548	0.123
Eeklo	-11.776	12.190	-0.182	-0.966	0.335
Ninove	-7.117	15.704	-0.061	-0.453	0.651
Oostende	-5.740	9.914	-0.073	-0.579	0.563
Brugge	-3.656	6.990	-0.034	-0.523	0.601
Veurne	-6.008	7.053	-0.053	-0.852	0.395
Kortrijk	13.300	7.223	0.128	1.841	0.067
R^2	0.475				
F	21.982				0.000***
N	304				

Notes: Dependent variable is the percentile in wealth distributions; the reference for dummies is 0; ***$p<0.001$, **$p<0.01$, *$p<0.05$.
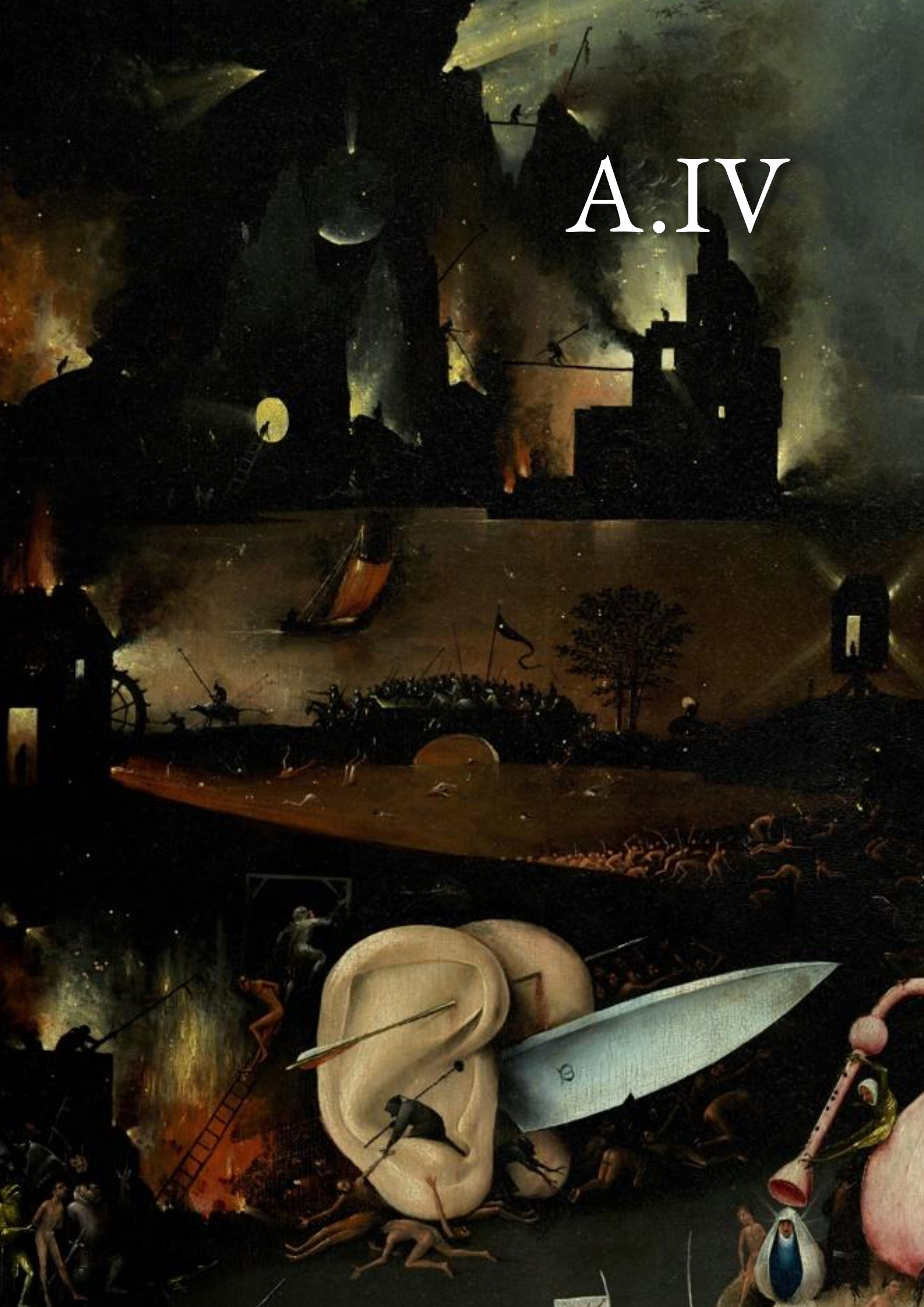
4.1 The wealth of the Republic of Florence prior to the *catasti*

To reconstruct the wealth of the Republic of Florence before the introduction of a more uniform and all-encompassing fiscal system, we have consulted a variety of sources, ranging from *estimi* to reports in contemporary chronicles. Only in rare cases, the reported information is directly useable for our purposes. Most of the time, we thus need to make assumptions based on additional sources or references for the same or similar communities. The results must therefore be interpreted as an order of magnitude rather than absolute figures. Whenever multiple estimates for one community were too different, we have opted to include a range of possible wealth levels.

A) Florence and its hinterland

In the 1320's, the Republic of Florence collected several direct taxations to finance the costly military expeditions against Lucca. After a devastating defeat on the battlefield of Altopascio, the Florentines appointed the Duke of Calabria, Charles, as their temporarily lord to aid them in their warfare. Charles immediately tried to raise more money for soldiers by imposing a new loan of 60,000 florins and by reintroducing the *estimo* unto the entire Republic. While no registers have survived of the aforementioned taxation, we know that it charged every household in proportion to their wealth. Tax rates were uniform across the territory but varied according to the type of property: 0.83% for houses, 1.25% for other forms of real estate, 1.66% for credits, and 1.66% to 5% on business profits. In this sense, the scope of the ducal *estimo* was more akin to the *catasto* of 1427 than the communal *estimi*, which was only levied on real property owned by households of the *contado*. The tax was collected three times between 1326 and 1328. The contemporary chronicler Giovanni Villani, who as a banker and official had intimate knowledge of Florentine finances, remarked that the first one was executed so badly that officials only collected 80,000 florins. This figure does indeed sound too low: if we apply an average tax rate of 1.25%, the implied total wealth of Florence would have been 6,400,000 florins or 308,032 kg. of silver.[101] In comparison, households owned properties worth 11,422,588 florins or 423,778 kg. of silver in the corresponding

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[101] It is impossible to determine a precise average tax rate since we lack information on the stock of each wealth component, but for most families houses probably constituted the majority of their wealth. We have opted to take the average of the rate on houses and the most common rate on other type of assets, namely 1.66%.

territory in 1427 (see Chapter Four, Table 4.1), when the population had dropped to one third of the level of 1326 and the Florentine economy was seriously struggling. In 1328, the urban government sent a letter to the merchants of Florence to complain about the dire state of the city's public finance, in which they mention that two collections of the *estimo* amounted to 120,000 florins. If these collections refer to the last two taxations, they raised an average of 60,000 florins, which is even lower than the first one mentioned by Villani. Although it is possible that officials had been, whether or not deliberately, incompetent or that households paid significantly less than their expected share, it is more probable that the three instances were not separate taxations, but rather part of a single *estimo* collected over different periods. If so, then the total revenue of the tax was 200,000 florins and the wealth of the Republic was roughly equal to 16,000,000 florins or 770,080 kg. of silver.[102] For the per capita figures, we have used a minimum and maximum range based on the varying estimates given in the historiography.[103]

The literary evidence can be supported by the GDP series reconstructed by Paolo Malanima. Although they pertain to the whole of Central Northern Italy, Malanima relied heavily on Tuscan sources for the late medieval period and may therefore be representative for our case. Scholars have pointed out that the domestic product is generally closely related to total wealth levels. For modern countries, the ratio between the two variables was rather stable and typically range between 3 and 5.[104] Recently, Malanima confirmed this observation for the Republic of Florence: wealth levels reported in the *catasto* of 1427 were equal to 4 à 4.5 times his GDP per capita figures.[105] Applying the same relationship on the data for 1326, returns an implied wealth of 2.317 à 2.607 kg. silver per capita. The lower bound is very similar to our estimates based on the literary evidence (only 6% difference with the higher bound reported in table 4.1).

Although Giovanni Villani only reported the total revenue of the ducal *estimo*, we may estimate the distribution between the capital and the countryside thanks to his discussions of

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[102] Even if the letter of the urban government pertains to the first two collections, the total value of the *estimo* can be estimated at 200,000 florins based on another remark by Villani: he states that the Florentines had paid around 900,000 florins in total or 568,000 annually between the middle of 1326 and the beginning 1328 to finance the war. The annual revenue in this period amounted to 250 à 300,000 florins from the indirect taxes (the *gabelle*) and 20,000 florins from fines. Together with the forced loan of 60,000 florins, these figures suggest that the Republic must have had an additional revenue of 188,000 to 238,000 florins, the vast majority probably coming from the *estimo*. John Najemy, *A History of Florence, 1200 - 1575* (Oxford: Blackwell, 2006), 119-23.

[103] Josiah Cox Russell, *Medieval Regions and Their Cities* (Bloomington: Indiana University Press, 1972), 40-52; La Roncière, *Prix et salaires à Florence au XIVe siècle (1280-1380)*, 659; D. Herlihy and C. Klapisch-Zuber, *Tuscans and their families: a study of the Flrorentine catasto of 1427* (New Haven: Yale University Press, 1985), 60-92; W. R. Day, "The population of Florence before the Black Death: survey and synthesis," *Journal of Medieval History* 28, no. 2 (2002).

[104] Paolo Malanima, "The Italian Economy Before Unification, 1300–1861," in *Oxford Research Encyclopedia of Economics and Finance* (Oxford University Press, 2020), 19.

[105] *The Economy of Renaissance Italy* (Oxon: Routledge, 2022), 50.

other taxations. In 1289, the military expeditions against Arezzo were financed through an *estimo* imposed on the city of Florence and its countryside. The former contributed circa sixty per cent of the total. We have no information on the tax rates or the taxable matters, though documents of the deliberations from 1285 reveal that the consuls discussed to assess both movable and immovable property, just as in 1326, albeit at a higher rate. One official also proposed to set the share of the countryside at three quarters of that of the capital, which confirms the representativeness of the distribution used four years later (i.e. the city would have paid 57% of the total).[106] An urban-rural ratio of 60 to 40 is certainly plausible as an almost identical relationship can be found for the region of Prato in this period (cfr. infra). Additional confirmation may be found in Villani's remarks about the sale of the annual *estimo* in 1338, which brought in 30,100 florins. At that time, the tax was only levied in the countryside at half the rate set in the *libra della lire*.[107] The *libra* was a wealth survey but did not list the actual total figures. Instead, the document merely stipulated the relative share of each household in a fictional levy (often equal to multiples of 1,000 florins so that the quotes for real taxes could easily be calculated). Given the amount of work needed to conduct such an extensive survey, the *libre* were used for many years and essential updates were only inscribed in the margins. It is therefore likely that officials still employed the wealth survey of 1326 to tax the countryside in 1338. If so, the sale reported by Villani was equal to roughly half the revenue of the ducal *estimo* for the *contado* in 1326 minus the cost of collection and the profit margin for the tax farmers. The extent of the last two variables is unknown, but evidence from late thirteenth- and early fourteenth-century Paris suggests that collecting was a relatively minor expense (about 1.5% of the total revenue) and that officials regularly managed to raise more than the expected sum (on average, 9.1% more over five different *tailles* between 1292 and 1313).[108] Adding these figures to the sale of 1338 and doubling it to match the ducal *estimo,* suggests that the *contado* would have contributed 67,338 out of 200,000 florins (or 33.67%) in 1326. The ratio is somewhat less favourable to the countryside compared to 1289, but such an evolution is plausible given the growing control of the city of Florence at that time. Table 4.1 in Chapter Four reports wealth levels for a range based on the two estimated ratios. The results are well in line with the figures for other communities in this period, such as the *contado* of Prato (which was on average only 7.6% wealthier per capita than the Florentine *contado*).

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[106] William Day Junior mentions a tax rate of 6.25% though his footnote shows that Villiani only mentioned the rate in relation to the *libra*. Unfortunately, we don't know how this specific *libra* calculated the share of each household. William Jr. Day, "The early development of the Florentine economy, c. 1100-1275" (University of London, 2000), 111.

[107] Giovanni Villani, *Nuova Cronica*, ed. Giuseppe Porta (Parma: Ugo Guanda, 1991), 583.

[108] Al Slivinski and Nathan Sussman, "Tax administration and compliance: evidence from medieval Paris," in *CEPR Discussion Papers* (Centre for Economic Policy Research, 2019), 25; table 1. A profit margin of circa 10% is also in line with the rate of return on capital in this period. Gregory Clark, "The interest rate in the very long run: institutions, preferences and modern growth," (UC Davis, 2005), table 2 and 3.

B) Pisa and its hinterland

For the second largest city in the territory that would eventually encompass the Republic of Florence in 1427, the data predating the Black Death is inadequate to estimate wealth levels. There is some information on taxation dating back to 1283 and 1344, but we have no idea about the rates employed or the precise distribution between town and countryside. For the period after the pandemic, an anonymous chronicler remarked how the new *estimo* of 1371 assessed both movable and immovable property of all inhabitants, even those without a profession. While this timing isn't as early as our estimates for other communities, it still allows us to assess the impact of the hegemony of Florence in the urban network because the conquest of Pisa only happened relatively late: the city was subjected in 1406 whereas most of the territories west of Florence were already incorporated by 1371. The chronicler states that the assessment amounted to 1,732,000 florins or 56,983 kg. of silver for the entire region but doesn't provide any specifications about its distribution. Subsequently, we will have to rely on other taxations to determine the respective share of Pisa and its *contado*. In 1385, a *prestanza* or forced loan of 10,000 florins was imposed, to which citizens contributed 8,000 florins.[109] The *catasto* of 1427 reveals a similar distribution: 76.22% of all wealth was held by inhabitants of Pisa.[110] Given the mass emigration of citizens after the conquest, amounting to nearly half of the urban population, the former, slightly higher ratio seems more accurate.[111]

The contemporary writer is also mute about the number of households included in the *estimo* of 1371. Reliable figures for the city in the period after the Black Death only become available from the first decade of the fifteenth century. Immediately after the conquest of Pisa, Florence imposed a forced loan on the remaining citizens. In total, 2,816 hearths were recorded as potential contributors. Five years earlier, a taxation revealed 2,660 solvable households and approximately another 840 households who were unable to meet their quote. These nearly 3,500 households probably represented between 12,250 and 15,000 inhabitants depending on the coefficient used for household size.[112] According to the *catasto* of 1427, each hearth counted on average 4.33 residents in Pisa. However, the coefficient was probably much lower in the second half of the fourteenth century due to the greater impact of plague

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[109]Cinzio Violante, *Economia, società, istituzioni a Pisa nel Medioevo: saggi e ricerche* (Bari: Dedalo libri, 1980), 129-33.

[110] D. Herlihy and C. Klapisch-Zuber, "Online Catasto of 1427 [Machine readable data file based on D. Herlihy and C. Klapisch-Zuber, Census and Property Survey of Florentine Domains in the Province of Tuscany, 1427-1480.]," ed. David Herlihy, et al. (Providence: Brown University, 2002).

[111] Giuseppe Petralia, "1406: il dissolversi di una società tardocomunale come premessa alla costruzione di uno stato toscano," in *Firenze e Pisa dopo il 1406. La creazione di un nuovo spazio regionale. Atti del convegno di studi Firenze, 27-28 settembre 2008*, ed. Sergio Tognetti (Firenze: Leo S. Olschki, 2010), 123-27.

[112] Bruno Casini, "I fuochi di Pisa e al prestanza del 1407," *Bollettino Storico Pisano* 24 (1957); Giuseppe Petralia, "Un documento per la storia della popolazione di Pisa tardomedioevale: il libro dei debitori delle taglie dell'anno 1402," ibid.60 (1991).

waves (mortality rates often exceeded 25% of the population in this period whereas such an event was rather exceptional in the fifteenth century, see table I.1 of the general introduction). A *prestanza* for Florence in 1378 and an *estimo* for Prato in 1372 suggest that the average household only contained 3.5 members.[113] Nevertheless, a higher estimate is plausible given that the population of Pisa had probably declined between 1371 and 1402 as a consequence of three major plague waves and economic difficulties. For Prato and Pistoia, two rather similar cities in the Republic of Florence, the demographic evolution for this period is known. If we project these trends on the Pisan data of the *catasto*, we respectively arrive at a population of 13,750 or 13,500. Although the estimates are very similar, we have opted to use the former figure as it coincides with the middle of the earlier mentioned interval for the *prestanza* of 1402. Applying the same methodology to the countryside, returns circa 24,500 or 21,750 inhabitants based on the evolutions in the *contado* of Prato and Pistoia respectively.[114]

C) Prato and its hinterland

Before the Black Death, the city of Prato was not yet part of the Republic of Florence. In this period, two different direct taxations were regularly collected from its citizens and inhabitants of the surrounding countryside, namely the *estimo* and the *libra*. Although the first one had an identical name to the contemporary Florentine tax, the basis of assessment was much more like to the *catasti* system as it targeted similar movable and immovable possessions. The rolls of the *estimi* have been partially preserved, covering only some parts of the territory. The libra was even more extensive because it also considered household income. Records are available for the city in 1325 and for the entire commune in 1285. In contrast to the *estimi*, they do not contain information on the total value of assets, but only list the share of each household. As we have no idea how these shares were calculated it is impossible to convert the figures into absolute wealth levels. While each type of source thus appears to be a dead-end, their shortcomings may be solved by combining the two taxes. Thanks to the *estimi* of 1305 and 1316, we know the total wealth of respectively the *ottavi* (i.e. districts covering circa an eighth of the territory each) *porta Capo di Ponte* and *porta Santa Trinita*. According to the *libra* of 1285, these two districts accounted for 23.3% and the city for 72.3% of the total fiscal capacity. Putting these figures together, suggest that the citizens of Prato owned 1,694,869 Florentine lire and those of the countryside 649,348 lire. Alternatively, we

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[113] Alessandro Stella, "Fiscalità, topografia e società a Firenze nella seconda metà del Trecento," *Archivio Storico Italiano* 151, no. 4 (558) (1993): 837; Enrico Fiumi, *Demografia movimento urbanistico e classi sociali in Prato dall'età comunale al tempi moderni* (Firenze: Leo S. Olschki, 1968), 89.

[114] *Demografia movimento urbanistico*, 35-149; D. Herlihy, *Medieval and Renaissance Pistoia: the social history of an Italian town, 1200-1430* (Yale University Press, 1967), 76.

may employ the ratios listed in the *libra* of 1325. But, since this tax is restricted to the city and only the *estimo* of the *porta Capo di Ponte* distinguishes between rural and urban areas, the basis for our estimate is more limited (representing only 8.88% of the urban fiscal capacity). Calculated this way, the wealth of the city would have been equal to 1,524,963 lire, which is within the same order of magnitude as our first estimate (10.02% less).[115] For the per capita data, we used the demographic information of the average number of households between the end of the thirteenth century and 1325, multiplied by the average size of households given in a census of 1339.[116]

D) San Gimignano and its hinterland

For the later conquered *distretto*, we possess of several taxations of income from agricultural possessions around San Gimignano between 1318 and 1336. Enrico Fiumi has used these sources to reconstruct ownership across the entire territory. According to him, households living in the countryside earned 18,582 *staia* of wheat each year.[117] In contrast, urban households held agricultural lands with an expected annual income of 98,034 *staia* and ecclesiastical institutions could count on 15,886 *staia.*[118] In medieval Tuscany, it was common practice to estimate the value of properties based on the expected rate of return. Both in the *catasti* and the *decime*, officials believed that the annual income represented 7% of the total. This rate can thus be applied to the taxations of San Gimignano to gain comparable values for immovable properties in the countryside. With a median and modal wheat prices of 13 s. per *staio* between 1318 and 1336, this methodology returns 2,709 kg. of silver in real estate or 2,989 kg. of silver in total wealth based on the importance of such assets in 1427.[119] A taxation based on the *libra* from 1332 lists 852 households in the countryside, which would be equal to circa 4,260 individuals according to Fiumi.[120] Unfortunately, we cannot compute urban wealth in the same manner as the income taxation only pertain to possessions held in the countryside. However, the fiscal source pertaining to the *libra* of 1332 informs us about the distribution of wealth between city and countryside, respectively 90% and 10% of the total. The extreme concentration of wealth in the former has to be attributed to the nature of San Gimignano's economy. As the area was one of the most important production centres of saffron, a very expensive spice often used for dying or medical

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[115] Fiumi, *Demografia movimento urbanistico*, 35-36.
[116] Calculations were made separately for town and countryside given the differences in household size (respectively 3.9 members per household in Prato versus 4.3 members in the *distretto*). Fiumi, prato, p71-83
[117] Each *staio* is circa 24.36 litres.
[118] Enrico Fiumi, *Storia economica e sociale di San Gimignano* (Firenze: Leo S. Olschki, 1961), 134-48.
[119] Paolo Malanima, "Wheat prices in Tuscany, 1260-1860 (annual averages)," Historical Prices and Wages: Datafiles (International institute of social history, 2019).
[120] Fiumi, *Storia economica e sociale di San Gimignano*, 159.

treatment, merchants of the city actively invested in the countryside. The trade was highly profitable as is evident from the many tower houses, built by these medieval elite families, that still dot the urban landscape today. Accordingly, the total wealth calculated with the aforementioned ratio suggests a rather high stock of wealth compared to its demographic size: with 26,848 kg. silver owned by 1,687 households or circa 8,000 persons mentioned in the *libra* of 1332, the average wealth per capita was more akin to the levels found in the largest centres at that time, such as Pisa or Florence.[121]

E) The countryside of Fuccecchio

For the rural area around Fucecchio, a *libra* from 1296 has been preserved. Here, 525 households totalled 10,505 lire.[122] The relationship between these quotes and the total wealth can be deducted from the few surviving fragments of the *estimo*. This survey was redacted some ten years later and only concerned real estate. In one fragment, the immovable property of Bigionis de Massa is assessed to return the equivalent of 14.67 *staia* of wheat and is accordingly assigned a *libra* of 223.33 s.[123] We can estimate the total value of Bigionis' assets by applying the customary rate of return of 7%, just as we did for San Gimignano (cfr. supra). If correct, his wealth was circa 209.52 *staia* of wheat or 2,179.54 s. based on the median and modal wheat price between 1290 and 1310 (i.e. 10.4 s. per *staia*).[124] This suggests that the *libra* represented roughly one tenth of the value of immovable properties. Subsequently, the inhabitants of Fucecchio probably owned real estate worth 2,248 kg. of silver. Table 4.1 in Chapter Four reports a slightly higher figure as we have adjusted it to be comparable with our data on total wealth (cfr. supra). For the per capita levels, we have multiplied the total household with the average size of households in the countryside of Prato in 1339. The results for Fucecchio are very similar to the ones we found for other early fourteenth-century rural communities.

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[121] For population figures see Day, "The population of Florence," 124-28.

[122] Alberto Malvolti, "Le finanze di un centro minore della Toscana medievale: Fucecchio tra XIII e XIV secolo," in *Quaderni della Sezione Valdarno dell'Istituto Storico Lucchese* (Fucecchio: Fondazione Montanelli Bassi, 2013).

[123] "La comunità di Fucecchio nel Medioevo. Boschi, acque, campagne. Ricerche sul territorio fucecchiese tra Medioevo ed età moderna," in *Studi Fucecchiesi* (Vicopisano2014), 35.

[124] Malanima, "Wheat prices."

4.2 The wealth of the County of Flanders c. 1300

Contrary to the Republic of Florence, very few taxation lists prior to the Black Death have been preserved for entire communities in the County of Flanders. Subsequently, we must employ alternative methodologies to estimate the total stock of wealth. Below, we have tried two different approaches: the first one tackles the issues in a direct manner via a general levy imposed by the French king on the County, while the second one relies on GDP figures for the city of Ypres. Given the assumptions and uncertainties in both methods, the double approach is required to test the robustness of the results.

A) La taille du roi (1305) and the tallia of Bruges (1296)

A first way to deduct a figure for the total stock of wealth makes use of the financial stipulations in the Treaty of Arthis-sur-Orge (1305) and in its subsequent renegotiations. After the battle of Mons-en-Pévèle in 1304, the French King, Philip the Fair, and the Count of Flanders, Robert of Béthune, (temporarily) ceased all hostilities. In exchange for amnesty and the reinstalment of Flanders as a county, the Flemish rebels promised to pay Philip the Fair a fine, consisting of a fixed sum of 400,000 lb. par. and an annual rent of 16.000 lb. par. The financial burden was immense because the high expenses for the past warfare had depleted all reserves: many cities and noblemen had taken out loans and/or had imposed taxes on their subjects to equip their armies. Moreover, the unfolding textile crisis severely undermined the economic basis on which the vast riches of the county were built. Unsurprisingly, the Flemish were rather reluctant to pay the agreed sums and regularly tried to revise the terms of the treaty. Eventually, by 1309, the French King proclaimed that the Flemish would only need to repay half of the annual rent if they ceased ownership of the castellanies of Douai, Lille and Orchies, which they did some years later. The remaining half still had to be paid yearly or could be fulfilled with a single deposit of 480,000 lb. par.[125] The Flemish communities preferred the first option to spread the burden over time. For example, the city accounts of Bruges contain payments to the French kings for 25 years.[126] For our purposes however, the second option is more informative because it gives us the total value of the imposed fines. Apparently, Philip the Fair believed that the County of Flanders (excluding Walloon Flanders) would be able to muster 880,000 lb. par. or 66,781.5 kg. silver in a short time frame.

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[125] Hans Van Werveke, "Les charges financières issues du traités d'Athis (1305)," *Revue du Nord* (1950).

[126] The French tax collectors provided the city with a copy of all their receipts in 1333. Louis Gilliodts-Van Severen and Edward Gailliard, *Inventaire des archives de la Ville de Bruges. Section 1: Inventaire des chartes*, 6 vols., vol. 1 (Bruges: Gailliard, 1876), 465-67.

In the different sources, the royal fine is often referred to as the "*taille du roi*" (the tax of the king). The wording is important because it does imply that the stipulated sums in the Treaty of Arthis-sur-Orge had a fiscal basis rather than being a simple restitution of the damages caused by warfare as was common in some other episodes of conflict. If true, the imposed fine was correlated to the total wealth of the County instead of the losses suffered by the French king. As with most of the medieval taxes, the sources related to the *taille du roi* are mute about the way the quote for Flanders was calculated. However, we can make an educated guess. Until 1302, Philip the Fair commonly resorted to the *centième* (i.e. the hundredth, referring to the tax rate of 1%) or the *cinquantième* (2%) to finance his wars, levied chiefly among the nobility as part of their feudal obligations of military service.[127] With the disastrous defeat of the French army at the Battle of the Golden Spurs, the King had to find additional sources of revenue and troops to launch new expeditions against the revolting Flemish. In the following months, Philip the Fair tried to introduce a general conscription by reinstituting and broadening the application of the *arrière-ban*, a feudal privilege that called upon the vassals of the king's vassals to take up the arms. As a rule, this military service could be bought off with a contribution that was proportional to one's wealth. A series of four royal edicts between 1302 and 1304 show that Philip the Fair continuously increased the requirements for such a buyout in an effort to raise more troops. Initially, the rate was in line with the traditional *cinquantième*: all nobles with wealth levels above the equivalent of 60 lb. tor. in rents and all non-nobles with more than 200 lb. tor. worth in property had to pay one fiftieth on the value of their movable possessions. In May of 1303, the quote was increased to a *vingtième* (twentieth) for all nobles with rents above 50 lb. tor. and non-nobles with rents above 100 lb. tor. Those with movable goods worth more than 500 lb. tor. in total still paid a fiftieth until January of 1304, when their rate was increased to a staggering 20% of their income. Every community, rural and urban, also had to provide two sergeants or 4 s. tor. per day for every hundred households.[128] Just months before the Treaty of Arthis-sur-Orge, Philip the Fair was thus experimenting with different types of fiscal regimes. It is therefore plausible that he used one of the quotes to determine the extent of the fine imposed on the County of Flanders.

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[127] See for example, the taxations in the County of Artois between 1295 and 1297. P. Bougard and M. Gysseling, *L'impôt royal en Artois. 1295-1302: Rôles du 100e et du 50e présentés et publiés avec une table anthroponymique* (Leuven: Imprimerie Orientaliste, 1970).

[128] Elisabeth Lalou, "Les questions militaires sous le règne de Philippe le Bel In : Guerre et société en France, en Angleterre et en Bourgogne xive-xve siècle," in *Guerre et société en France, en Angleterre et en Bourgogne xive-xve siècle*, ed. Maurice Keen, Charles Gury-Deloison, and Philippe Contamine (Lille: Publications de l'Institut de recherches historiques du Septentrion, 1991); Xavier Hélary, "Révolution militaire, révolution fiscale ? Le poids de la guerre dans les finances royales sous le règne de Philippe le Bel," in *Monnaie, fiscalité et finances au temps de Philippe le Bel*, ed. Philippe Contamine, Jean Kerhervé, and Albert Rigaudière (Vincennes: Institut de la gestion publique et du développement économique, 2007); Caroline Decoster, "La fiscalisation des aides féodales sous le règne de Philippe IV le Bel : une stratégie au service de la souveraineté royale," ibid.

For the king, it would have been a kind of poetic justice to levy the equivalent of the *arrière-ban* he had to impose on his other vassals to bring the insubordinate county back in line. But, if this was indeed the case, which rate was applied in the treaty? The traditional *centième* and *cinquantième* would imply that total stock of Flemish wealth amounted to either 6,678,152 or 3,339,076 kg. silver. In comparison to our results for the early fourteenth-century Republic of Florence, these figures are too high and thus unlikely. The *vingtième* returns a more plausible wealth level of 1,335,630 kg. silver. Likewise, the last option suggests a reasonable stock of 333,908 kg. silver, though a tax rate of 20% on wealth seems exuberant for this period. Nevertheless, the financial repression after the Franco-Flemish war was hard so we cannot rule out such a high rate without further evidence.

An interval of possible wealth levels can be deducted from a tax list, called *tallia*, of Bruges from 1296. In the beginning of that year, the Count of Flanders, Guy of Dampierre, agreed to financially support the King of France, Philip the Fair, in his war against England (1294-1303). In return, the king granted Guy of Dampierre the right to levy a *cinquantième*, amongst all of his (richer) subjects, including citizens, and withhold half of the collected amount for his personal gain. Alarmed by the infringement on their urban privilege of being exempt from direct comital taxation, the Flemish cities quickly reacted by sending delegates to Philip the Fair to renegotiate the agreement. By the end of March, a more beneficial arrangement had been concluded for both parties: the Flemish cities would immediately provide the requested financial aid on the condition that the *cinquantième* would be revoked and the urban privileges reaffirmed.[129] As the collection of taxes in premodern times was rather slow, especially when encompassing a large area such as a county, the lure of quick cash must have been great for the French king who witnessed the arrival of a new English expeditionary force in Gascony in the very same month of March. For the cities, the protection of their political and economic autonomy vis-à-vis the count was the very foundation of their urban identity. Any effort to curb their power had to be met with fierce opposition.

The agreement between Philip the Fair and the cities of Flanders stipulated a contribution of 15,000 lb. par. for the city of Bruges, which was the equivalent of circa 30% of its income from excise taxes in the following two years (1297-1299) or 200,000 days of unskilled work.[130]

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[129] Noël Geirnaert and Leontien De Leeuw-Geirnaert, "Een fragment van een onbekende zettingslijst voor een verplichte lening te Brugge uit 1296," *Bulletin de la Commission royale d'Histoire* (1989): 29-30. Two charters of 1296 in the city archives of Bruges confirm these demands. In one charter, the king of France "promet pour lui et ses successeurs rois de France de les respecter [i.e. priviléges et franchises] et faire tenir à toujours." In another one, Guy of Dampierre promises to repay 7,500 lb. Par. to the city of Bruges, which he had seized from the money lender used by the aldermen of Bruges to pay Philip the Fair and which he had considered his fair share of the *50ste penning*. Gilliodts-Van Severen and Gailliard, *Inventaire des archives de la Ville de Bruges. Section 1: Inventaire des chartes*, 1, 48-49.

[130] A. Wyffels, Jos De Smet, and A. Vandewalle, *De rekeningen van de stad Brugge, 1280-1319*, 2 vols. (Brussels: Paleis der Academiën, 1965-97), vol 1., 12-14. For wages, see Chapter One.

Because this sizeable sum had to be paid on short notice, the aldermen relied on the famous and extremely wealthy money lending family of Crespin in Arras. The loan had to be repaid within four years and bore a simple interest rate of 10.5%.[131] Given that public debt was rapidly increasing due to large construction works, ongoing war, and a detrimental financial management of orphans' inheritances, the aldermen resorted to a *tallia*, which was in practice a forced interest-free loan, gathered from its richest citizens to repay the Crespin family.[132] Only a fragment of the partition and payment of this *tallia* has been preserved, listing about half of the total taxed households (n=353).[133] Fortunately, the first instalment of the loan and the outstanding debts per family have also been copied in the city accounts of 1297 (n=709).[134] Adding both values together for each household may thus result in a complete picture A confrontation of the values with those given in the fragmentary list shows indeed little divergence: only in seven cases (<2%) do we find different figures. These exceptions may be connected to the dynamic nature of the fragmented list. While the repartition was set, the actual payments were added and sometimes corrected in the margins. It is therefore plausible that in some cases minor changes were made after the redaction of the document. The list compiled in the city accounts appear to have been more definitive and will serve as the basis for our further analysis of wealth. It is also important to note that the partition list mentioned 34 households (9.6% of total) who eventually failed to contribute anything. Their absence in the final version, as written down in the city accounts, can be explained by a multitude of scenarios: some households may have moved out the city, others may have witnessed a loss of fortune, and still others may have been exempt based on certain privileges. Whatever the reasons, their initial or theoretical quota is not considered in the analysis.

In total, the revenue of the *tallia* amounted to 21,197.4 lb. par. or 1,838 kg. silver. Although no information is given about the tax rate in the preambles of the sources pertaining to this forced loan, it can be deducted by confronting an earlier list from 1292, detailing the total wealth of the richest members of the *poorterie*, with the *tallia*.[135] Record linking shows that

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[131] Ibid., vol. 1, 982-83.

[132] On the mismanagement of the orphans' inheritances and its burden on the urban finances, see J. Maréchal, "Het weezengeld in de Brugsche stadsfinanciën van de middeleeuwen," *Genootschap voor Geschiedenis 'Société d'Emulation' te Brugge* LXXXII (1939).

[133] Edited in Geirnaert and De Leeuw-Geirnaert, "Een fragment van een onbekende zettingslijst voor een verplichte lening te Brugge uit 1296."

[134] The heading in the city accounts for the first installment refers incorrectly to another *tallia* which was levied in the same year to finance the new fortifications. Ibid., 27.

[135] Edited by Jozef de Smet, "De Inrichting van de Poorterlijke Ruiterij te Brugge in 1292 en haar Indeeling in Gezindheden in 1302," *Verslagen en mededelingen van de Koninklijke Vlaamse Academie voor Taal- en Letterkunde*, no. 6 (1930).

the tax rate constituted on average 2.57% of the total wealth (n=154 matches).[136] Applying this rate to the revenue, suggests that the wealth owned by the richest citizens of Bruges was equal to 71,534 kg. silver. As we have seen in Chapter 4.1, Bruges represented 15.2% of the total fiscal capabilities of the County according to the *Transport* of 1309. As such, the absolute minimum threshold of our wealth interval can be set at 470,448 kg. silver, which rules out the extreme tax rate of 20% for the *taille du roi*. At the opposite of the spectrum, we may establish the maximum wealth of the County by assuming that all households in Bruges excluded from the *tallia* owned only slightly less than the minimal quote would imply. Although the lowest contribution was 3 lb. par., this quote was only paid by a single household and must be considered an exception. The economic disruption due to the violent start of the Franco-Flemish War (1297-1305) in the same year that the first instalment of the loan was due, probably negatively affected the economic fortune of many elites. Accordingly, some contributions were revised downward for the next instalments (cfr. supra). The next lowest figure included in the *tallia* and the standard minimum quote was 5 lb. par. (n=14). All other standard categories were multiples of this base figure (n= 637 or ca. 94% of all contributions). In real terms, this minimum quote represented a wealth of 194.55 lb. par or 16.87 kg. silver. This figure must be multiplied by the number of excluded households (n=11,797; see Appendix 4.3 for population estimates) and added to the already calculated share of the 675 elite households. The result implies a maximum wealth level of 270,573 kg. silver for Bruges or 1,780,085 kg. silver for the entire County. Consequently, the *vingtième* seems to be the only plausible tax rate for the *taille du roi* and puts the total Flemish fortune at 1,335,630 kg. silver.

B) The gross domestic product of Ypres

Since economic output is dependent on the availability of capital, GDP and wealth are highly correlated. For modern countries, the ratio between the two typically range between 3 and 5. For Italy, scholars found that this relationship remained stable between 1861 and 1973.[137] Extensive studies for the premodern period are lacking, but a recent confrontation of GDP figures of Florence with the wealth levels reported in the *catasto* of 1427 suggests a similar ratio of around 1:4.[138] In what follows, we employ this relationship to reconstruct the stock of wealth in the city of Ypres and, by extension, the County of Flanders. GDP figures can be

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[136] Since total wealth was declared per bracket, we used the average per bracket to calculate the tax rate. A similar figure of 2.5% was already discussed in Carlos Wyffels, *De oorsprong der ambachten in Vlaanderen en Brabant* (Brussel : Koninklijke Vlaamse academie voor wetenschappen, 1951), 67-68.

[137] Malanima, "The Italian Economy Before Unification, 1300–1861," 19.

[138] *The Economy of Renaissance Italy*, 50.

calculated in three different ways: through output, income, or expenditure. Here, we explore the potential of the first two methods:

First, we may be able to estimate the GDP of Ypres by employing the output figures of its main economic activity: textiles. According to Pieter Boussemaere, the city produced between 50,000 and 55,000 cloths annually in the 1320's, of which ca. 52% were heavy cloths.[139] A wide range of textiles with different qualities and hence prices existed. Unfortunately, the share of each type is unknown and data on prices is very scant because sources rarely mention the specific characteristics (size, colour, weave, etc.) of the piece of cloth being sold or bought. Nevertheless, the city accounts of Ypres do provide us with some indications. In 1325, the aldermen purchased 3 "*aunes de drap bleu [pour faire] des parures pour les tainteniers*" (2.1 m. of blue dyed fine woollen to make uniforms for the cloth dyers) for 12.33 s. par. strong. Considering a standard length of 41 *aunes* per heavy cloth, we may assume that a single piece fetched a price of 8.42 lb. par.[140] Additional records of the same year suggests that it was of average quality for this category: the prices of 72 unspecified heavy cloths varied between 7.2 lb. par. and 12.6 lb. par (mean 9.45 lb. par.). For the other end of the spectrum, the accounts mention two purchases of half cloths for 3.9 lb. par. each, which is in line with the ratio between the price of light and heavy cloths given in the historiography (the former being worth between 40% and 60% of the value of the latter).[141] Applying these figures to the corresponding category of cloth, returns a GDP of 328,146 lb. par. realised in the textile industry.[142]

To arrive at the total output, we still need to add all the other sectors of the urban economy. Several historians have tried to calculate the share of the population active outside the cloth production. Their estimates range from 20% to 44%.[143] Both extremes are improbable. At the lower bound, a comparison with Ghent and Bruges can be insightful. In these two major centres of cloth, 57.30% (for Ghent) and 55.77% (for Bruges) of the population was active in textile production in 1346 and 1297 respectively.[144] Given that the economy of Ypres was

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[139] Pieter Boussemaere, "De Ieperse lakenproductie in de veertiende eeuw opnieuw berekend aan de hand van de lakenloodjes," in *Jaarboek voor Middeleeuwse Geschiedenis*, ed. Bas van Bavel, et al. (Hilversum: Verloren BV, 2000), 148-49.

[140] Peter Stabel, *A Social History of Cloth Manufacture in Medieval Ypres* (Turnhout: Brepols, 2022), table 1.1.

[141] For prices in the city accounts, see Marez and de Sagher, *Comptes de la ville d'Ypres de 1267 à 1329*, vol 2, 451-71, 554-63. For the ratio in historiography, see John Munro, "Medieval Woollens: the western European woollen industries and their struggles for international markets, c. 1000-1500," in *The Cambridge history of western textiles*, ed. David Jenkins (Cambridge: Cambridge University Press, 2003).

[142] (8.42 lb. par. * 0.52 * 52,500 cloths) + (3.9 lb. par. * 0.48 * 52,500 cloths)

[143] Pieter Boussemaere, "De Ieperse poorterijregisters tussen 1350 en 1468. Reconstructie, analyse en bespreking," *Westhoek* 15 (1999): 157-58.

[144] For Bruges, see Appendix 2.5, table 1. For Ghent, see W. Prevenier, "Bevolkingscijfers en professionele strukturen der bevolking van Gent en Brugge in de 14de eeuw," in *Album Charles Verlinden* (Gent: Belgisch centrum voor landelijke geschiedenis, 1975), 271.

even more and for a longer period specialised in this type of industry, it follows that at least 60% of its citizens must have been employed in this kind of occupations. At the upper bound, the room for alternative sectors is severely limited if we account for a relatively fixed group of citizens providing basic commodities, such as bakers, carpenters, butchers, etc. We therefore simply split the difference between the extremes of the range and set the remaining share to be 32% of the total population. To estimate their total output, we employ two methods. First, we may assume that labour productivity and, by extension, output in a premodern society was relatively similar across different sectors given the limited impact of technology, at least at the aggregate level of a single city where occupational mobility would be rather high even in the face of social and political constraints, such as guild rules.[145] If so, we can extrapolate the data for the textile industry to the entire economy. It suggests that Ypres' GDP in 1326 was equal to 482,567 lb. par. or 36,614 kg. silver. Applying the ratio of 1:4, returns 146,456 kg. silver of urban wealth. Based on Ypres' share in the *Transport* of 1309 (i.e. 10.7%), we arrive at a total of 1,368,744 kg. silver for the entire County of Flanders, a figure very similar to the one we found for the *taille du roi* (just 2.5% difference).

The second method starts from the same presupposition - that is the comparability of productivity in an urban labour market - but tries to tackle the puzzle from the income side. This can be done by adding income from labour, capital, and land. Labour income can be computed by multiplying the number of employed citizens with the average wage rate and working time. The last two variables are known from chapters one and two respectively: skilled workers earned 24.6 d. par. per day, unskilled workers 15.9 d. par., and they both toiled for circa 233.75 days. Women generally earned half of the unskilled wages and were less employed because they also had to take care of housekeeping. We therefore set their working time at half that of men.[146] The number of employed women and men can be deducted from the censuses of the fifteenth century (25.6% and 21.4% of the total population respectively).[147] For the number of skilled workers we have no direct data, but the industrial census for Ghent in 1738 suggests that on average 43% of the male artisans were masters. This is certainly an overestimation because many unskilled labourers worked outside the guild system, so we have accordingly halved the share of masters in the total labour force. The estimate is crude, but its impact on our final result is limited (maximum ±5.9% difference in GDP when setting the share of skilled male workers either to 0% or 43%). Women could not perform skilled labour unless in the rare occasion of a widow continuing her late husband's

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[145]Paolo Malanima, "Wages, Productivity and Working Time in Italy (1270-1913)," *Journal of European Economic History* 36 (2007): 9.

[146] For a discussion on the working time of women, see: Sara Horrell, Jane Humphries, and Jacob Weisdorf, "Family Standards of Living Over the Long Run, England 1280–1850," *Past & Present* 250, no. 1 (2021).

[147] Henri Pirenne, "Les dénombrements de la population d'Ypres au XV e siècle (1412-1506). (Contribution à la statistique sociale du moyen âge.)," *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte* 1 (1903): 15.

profession. Such exceptions have little effect on our calculations. Applying the proper figures for the daily wage rate, working time and active population, tells us that income from labour amounted to 117,378.9 lb. par.[148] Regrettably, we do not have similar data for the other two factors of productions for Ypres in 1326. However, we do have some rough indications about the share of labour income. For the Flemish textile industry in specific, John Munro estimated this share at 15% of the total production costs.[149] For the other occupational sectors, we must rely on national averages for France and England, which are the only ones available for the early fourteenth century. In the former area labour compromised around 37% of the GDP around 1326 whereas it compromised ca. 50% in the latter country.[150] Applying the average of both estimates to the other occupational sectors gives us a weighted average labour share of 24.12% for the entire city of Ypres. If true, the total GDP can be set at 486,645.4 lb. par. or just 0.8% above our previous estimate based on output. Subsequently, wealth levels for the city and the County are similar to all previous ones (respectively, 147,722 and 1,380,581 kg. silver), which seems to confirm their robustness. For the final figures to be included in the tables and chapter, we have chosen the middle of all three estimates, leaving out the ones at either side of the interval.

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[148] The exact formula is: (25,000 inhabitants * 0.214 active men * 0.215 skilled workers * 24.6 d. par. per day * 233.76 days) +(25,000 inhabitants * 0.214 active men * 0.785 unskilled workers * 15.9 d. par. per day * 233.76 days) + (25,000 inhabitants * 0.256 active women * 7.95 d. par. per day * 116.88 days).

[149] John Munro, "Medieval woollens: textiles, textile technology and industrial organisation, c. 800-1500," in *The Cambridge History of Western Textiles*, ed. David Jenkins (Cambridge: Cambridge University Press, 2003), 216.

[150] Giovanni Federico, Alessandro Nuvolari, and Michelangelo Vasta, "Inequality in pre-industrial Europe (1260-1850): new evidence from the labour share," in *Quaderni del Dipartimento di Economia Politica e Statistica* (Siena: Università di Siena, 2020), 10-19.

4.3 The population of Bruges around 1300

No clear estimates for the population of Bruges exists for the beginning of the fourteenth century. Recently, Peter Stabel, Jeroen Puttevils and Jan Dumolyn suggested that the population "probably [numbered] well over 50,000 at the end of the thirteenth [century]" and that "it is safe to estimate the population of thirteenth-century Bruges, before the great hunger (1315-17), to be around 60,000," though they give not a single piece of archival evidence for this claim.[151] The first, more precise and reliable figure dates from 1338-40 and is based on the extent of the militia across several expeditions. According to Walter Prevenier, the militia lists suggest that between 36,738 and 45,921 inhabitants lived in Bruges at that time, with the latter figure probably being more realistic.[152] Similar data is also available for 1316 when a single contingent, called *voud*, was mustered among the different occupational groups and the *poorterie*, a class of wealthy rentiers, to man a war fleet. Whereas the multitude of campaigns between 1338 and 1340 allowed historians to estimate the largest extent of the urban army, the maximum number of contingents for 1316 cannot be deduced in a similar way. However, Raymond Van Uytven cleverly used an exceptional list of all bakers in the city in 1317 to calculate the total strength of their guild. Given that the baking guild provided 16 of their 184 members (1 out of 11.5 members) for the single *voud* of the war fleet, he assumed that the entire Bruges militia would have compromised about 11 *vouden*. Applying this ratio to all other groups of the contingent and adding a none specified number of households that were not part of the militia, he eventually arrived at a population of circa 40,000 souls in 1316.[153] Although this estimate seemed plausible at that time, the continuous upward revision of the urban demography in 1338-40 since the publication of Van Uytven's article has severely undermined its credibility. Indeed, the estimate of Prevenier for 1338-40 would imply that the population of Bruges had increased up to 15% despite the occurrence of one of the deadliest famines in Europe (1315-17), ongoing warfare and revolts, as well as the unfolding of the late medieval textile crisis with its detrimental effect on industrial

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[151] The estimate is based on some reflections about the share of population included in the militia list, which they believe to have been severely overestimated by Walter Prevenier (see discussion in text) even though the latter author based his findings on very comparable data from Ghent. In contrast, Stabel et al. assume without explanation that only a quarter of the inhabitants was a member of the craft-guilds, the commercial class, or the retailing services, and would have accordingly been represented in the militia list. If this holds true, the total population of Bruges would have been around 180,000 inhabitants (45,000 / 0.25), which is certainly too high. We can only assume that they meant that a quarter was *not* part of the earlier mentioned three groups, which would indeed result in their suggested estimate of circa 60,000 inhabitants when applied to the figures of Prevenier (45,000 / 0.75). Again, there is no clear basis to assess the size of the excluded groups at one quarter of the total. A. Brown and J. Dumolyn, *Medieval Bruges: c. 850–1550* (Cambridge University Press, 2018), 58 and 98.

[152] The range depends on which coefficient one uses to multiply the number of households with its average number of members (commonly between 4 and 5). Prevenier, "Bevolkingscijfers en professionele strukturen."

[153] Raymond Van Uytven, "Plutokratie in de 'oude democratieën der Nederlanden'. Cijfers en beschouwingen omtrent de corporatieve organisatie en de sociale structuur in de late Middeleeuwen," *Handelingen van de Koninklijke Zuidnederlandse Maatschappij voor Taal- en Letterkunde* 17 (1962).

employment. Van Uytven's estimate also falls severely short of the 50,000 à 60,000 inhabitants suggested by Stabel et alii. Something seems off.

On closer inspection, the list of bakers employed by Van Uytven only includes those running their own bakery. The document was compiled amidst the Great Famine of 1315-1317 when the aldermen of Bruges ordered imported grain to be redistributed among all bakers for an artificially low price to counter the effects of the dearth and secure a steady supply of affordable bread.[154] In this context, it is highly unlikely that those who were not self-employed would have been provisioned with grain. A sizeable part of the bakers' guild was thus probably omitted in the provisioning list of 1317. While a small minority of masters may have worked for others as they did not have the capital to acquire and run their own bakery, this group of employee bakers consisted mostly of journeymen who could not (yet) afford the high costs to become a master.[155] Workshops also regularly employed apprentices, but they were generally too young to be mustered for the militia and were rarely the head of a household. For all these reasons, we should only add the total number of journeymen to the 184 masters identified by Van Uytven to calculate the total population of Bruges. Unfortunately, direct data for the ratio between those groups only becomes available from the eighteenth century on. A census in 1738 counts 0.622 and 0.678 journeymen for every master baker in Ghent and Antwerp respectively, two cities which were comparable in size to early fourteenth-century Bruges (between 40,000 and 60,000 inhabitants).[156] Applying these figures to the militia list of 1316 suggests that the total strength of the urban army consisted of 19 *vouden* (between 18.65 and 19.30 contingents).[157] Since every *voud* comprised 600 soldiers, the militia may have included some 11,400 men from guilds and the *poorterie*. According to Prevenier, we should add another 9.4% to accommodate for households that were not part of the militia system, such as foreign traders, clergy or those with occupations outside the craft-guild organisation.[158] This brings the total to 12,472 households and implies that somewhere between 49,888 and 62,360 persons lived in Bruges in 1316, depending on assumptions about the household size. Again, the higher figure seems preferable.

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[154] Hans Van Werveke, "Bronnenmateriaal uit de Brugse Stadsrekeningen betreffende de Hongersnood van 1316," *Bulletin de la Commission royale d'histoire. Académie royale de Belgique* 125 (1959).

[155] On the extent and details of the costs, see for example the case of sixteenth-century bakers in Ghent and Bruges: Dambruyne, *Corporatieve middengroepen : aspiraties, relaties en transformaties in de 16de-eeuwse Gentse ambachtswereld*, 181-213.

[156] Harald Deceulaer, "Urban artisans and their countryside customers: different interactions between town and hinterland in Antwerp, Brussels and Ghent (18th century)," in *Labour and labour markets between town and countryside (Middle Ages - 19th century)*, ed. Bruno Blondé, Eric Vanhaute, and Michèle Galand, Comparative Rural History Network (Turnhout: Brepols, 2001), 222-23.

[157] 184 master bakers + (184 * 0.622 or 0.678) journeymen bakers / 16 soldiers from the baking guild for each *voud*

[158] Prevenier, "Bevolkingscijfers en professionele strukturen," 282-84.

Obviously, one cannot adopt the ratio between journeymen and masters of the eighteenth century uncritically for the early fourteenth century. Baking technology, guild organisation, labour relations, etc. must have changed significantly over the course of 400 years and must have impacted the position of the journeyman in the baking guilds of the Southern Low Countries. In addition, the uncertainty of the average household size in early fourteenth-century Bruges still left us with a rather large range of values. Furthermore, Walter Prevenier was sceptical about extrapolating the number of *vouden* based on the assumed strength of a single craft-guild. He also believed that the occupational distribution found in the militia list of 1316 was outdated and actually reflected the situation of 1297, when the system was first introduced.[159] An update did indeed occur within the following five years.[160] The last criticism doesn't pose too much of a problem as we are mainly interested in a general population figure for the beginning of the fourteenth century, however, the other remarks still stand. We therefore need a robustness check that doesn't depend on assumptions about journeymen, the representativeness of militia lists, or the size of households.

Logically, the correlation between the population of a premodern European city and the number of bakeries is quite high because bread was the most fundamental component of the diet, few people had access to bread ovens, and bread could not be transported over large distances without going stale and/or mouldy. In other words, the most common staple food had to be produced locally by specialists for customers living in their direct vicinity. The relationship is best illustrated by the case of eighteenth-century Haarlem when the baking guild actively adjusted its maximum members in accordance to a long-term population decline: as the number of inhabitants dropped from 43,000 to 20,000 in the span of eighty years, the bakers agreed three times to put a hold on new members, letting their number dwindle naturally from 96 to 50.[161] The number of bakeries, which we know for Bruges from the 1317 provisioning list, can thus be converted directly into an estimate of the total population, significantly restricting the number of assumptions we need to make. The only caveat is deducting the ratio between bakeries and inhabitants for cities in the late medieval Low Countries. After all, this relationship was not constant throughout history. Proletarianisation, bigger ovens, diversification of diet, etc. probably lead to a steady decline in the necessary number of bakeries. According to Jan de Vries, the ratio was 1 in 400 during the seventeenth and eighteenth century in Holland.[162] In sixteenth century Antwerp, there were 285 bakeries at the peak of its demographic boom or circa 1 bakery for every 351

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[159] Ibid., 287-88.

[160] J.F. Verbruggen, "Het gemeenteleger van Brugge van 1338 tot 1340 en de Namen van de weerbare Mannen," *Revue du Nord* 45, no. 178 (1963).

[161] de Vries, *The Price of Bread*, 192.

[162] Ibid., 190-94.

citizens.[163] For Ypres, Henri Pirenne identified 7 bakers among 697 households in one ward of the city in 1431. With an average of 3.4 members per households, we can deduce a ratio of 1 bakery per 339 souls.[164] For the fourteenth-century Low Countries, censuses or taxation lists rarely mention the occupation of every household included. There are however two exceptions. For Damme, a small city of circa 2,000 inhabitants just 5 kilometres from Bruges, we find 5 to 8 bakers in its taxation records between 1395 and 1400 (average ratio of 1:308). For Mons, the capital of the county of Hainaut housing approximately 10,000 souls, the *taille* of 1365 mentions 35 bakeries (1 for every 286 citizens). If we multiply these ratios for late medieval cities in Flanders with the 184 bakeries found in the provisioning list, we can estimate that the population of Bruges totalled between 52.624 and 62,376 inhabitants in 1317, a range that is remarkably similar to the one we calculated based on the militia list (nearly identical maxima and a difference of ca. 5% between the minima). It is also very comparable to the range proposed by Stabel et alii (cfr. Supra).

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[163] Jan Van Roey and Hans promotor Van Werveke, "De sociale structuur en de godsdienstige gezindheid van de Antwerpse bevolking op de vooravond van de reconciliatie met Farnèse (17 augustus 1585)" (PhD Thesis, RUG, 1963), 67.

[164] Household size is calculated from other censuses of the Ypres's population in the same period. Pirenne, "Les dénombrements " 13, 23-27.
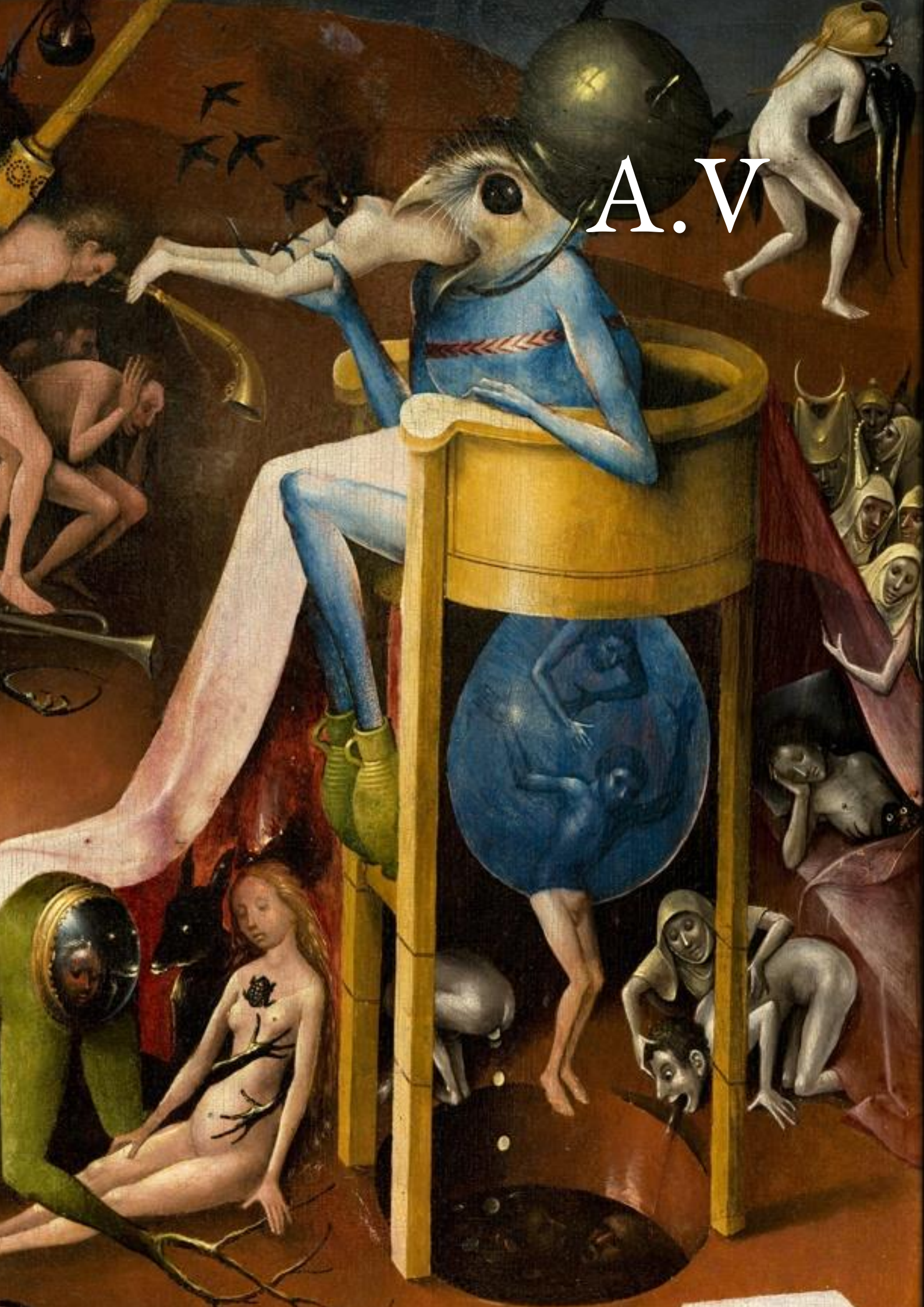
5.1 The *prestanza* of Florence in 1325

On the 25th of March 1325, a forced loan was collected from the inhabitants of Florence to finance the war against Lucca. Only citizens with a minimum wealth of 1,000 lire, the equivalent of approximately 4,300 days of unskilled work, had to contribute to the total sum of 50,000 florins.[165] A single register of the collection has been preserved for one part of the city in the state's archives.[166] The list contains 543 households for the *sesto* (a sixth part of the city) of San Piero Scheraggio. Contributions ranged from 1 to 123 florins (14.5 to 1791.5 days of unskilled work). The relationship between the minimum quote and wealth level included in the loan suggests that the tax rate amounted to 0.34%, which is consistent with the rates employed in the *catasto* in 1427 (0.19% of the taxable wealth for the *contado*, 0.25% for Pisa and 0.5% for Florence).[167] Tax rates of the *estimi* were usually higher (from 0.36% up to 10.51%), but these were only levied in the countryside. The lower figure for 1325 can probably be explained by the privileges of the Florentine citizens, usually exempt from taxation in this period, and the occurrence of another *prestanza* in the previous year.

Although a tax register predating the Black Death is extremely valuable to assess the evolution of inequality, the fragmentary nature of the source makes it difficult to compare with already studied records, which usually encompass the entire city and its population. Below we will try to extrapolate the distribution of wealth based on the partially preserved loan, but before we do so, we need to tackle two issues. More precisely, the coverage of the *prestanza* of 1325 is both socially and geographically limited. Socially, the high minimum wealth level implies that a large part of the citizens was excluded. Unfortunately, we do not know how many households were taxed in the entire city, so we cannot pinpoint which share of the population we need to compare over time. The inclusion of some occupations, such as bakers, carpenters, dyers or shoemakers, suggests that the loan was not restricted to the elites, but also included the families of richer craftsmen who were typically part of the upper middle classes. If we would apply the same minimum quote to the *catasto* of 1427, expressed as the number of unskilled days to account for inflation, 27.35% of the total households would have

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[165] Najemy, *A History of Florence, 1200 - 1575*, 121.

[166] "Prestanza 1325," (Florence: Archivio di Stato di Firenze).

[167] Herlihy and Klapisch-Zuber, *Tuscans and their families*, 18.

contributed to a similar loan.[168] Obviously, the wealth distribution must have changed over the century and the figure cannot be extrapolated to 1325 without further considerations.

Geographically, the source is limited to San Piero Scheraggio. Moreover, officials noted that, aside from the 543 listed households, there were 506 households in the *sesto* whose levy could not be collected "because of the water".[169] The rather cryptic explanation probably refers to the flooding of the river Arno, which happened frequently in this period. In 1333, only seven years later, one of the worst floods in Florentine history claimed more than 300 lives and swept away bridges, houses and even parts of the city wall. Water reportedly rose up to three metres and half above the street level.[170] It is plausible that even a lesser flood may have hindered the collection of levies, especially in San Piero Scheraggio, which was located upstream on the right bank of the Arno. If true, the exclusion of households may have been geographically concentrated near the river and may therefore distort our results. To identify such a bias, we will compare the geographical distribution of households with the next available taxation list, namely the *estimo* of 1352. A confrontation with the detailed *catasto* of 1427 provides us with an additional check.

Compared to the later sources, the *prestanza* employs different territorial units to divide the city. The old administrative system of six wards or *sestieri* was replaced by quarters or *quartieri* in 1343. At the same time, the parishes and priories who made up the *sestieri* were substituted by the larger *gonfaloni* as the basic administrative unit for taxation. The *sesto* of San Piero Scheraggio corresponded largely with three of the four *gonfaloni* of the quarter of Santa Croce, namely Carro (wagon), Bue (ox), and Lion Nero (black lion). The comparison of the geographical distribution does not reveal significant differences in the relative share of each *gonfalone* or corresponding parishes (maximum difference of 1%). Even after a century, the ratio between the localities seems comparable, albeit the parishes of Carro had lost some population in favour of the others (see Table A5.1). At the level of individual parishes, differences between the *prestanza* and the *estimo* of 1352 are limited as well with the exception of San Firenze, which seems to be overrepresented in the loan based on its total population in 1352 (see Table A5.1). However, in general, the distribution of the households included in the *prestanza* probably matched the demographic pattern of the total population in Santa Croce as is implied by the high rank correlation between the two lists (Spearman's rho = 0.936, p<0.001).

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168 "Online Catasto of 1427." For wage data, see Chapter One.
169 "Vi sono 506 poste cancellare dall'aqua." Prestanze 1326, folio 119.
170 Gerrit Jasper Schenk, "'...prima ci fu la cagione de la mala provedenza de' Fiorentini...' Disaster and 'Life World'. Reactions in the Commune of Florence to the Flood of November 1333," *The Medieval History Journal* 10, no. 1&2 (2007).

TABLE A5.1 GEOGRAPHICAL DISTRIBUTION OF HOUSEHOLDS IN SAN PIERO
        SCHERAGGIO

A) *Comparison at the gonfalone level*

	Share of households (% of total)		
Gonfalone	Prestanza 1325 (N=482)*	Estimo 1352 (N=1,430)	Catasto 1427 (N=1,297)
Carro	28.4%	29.0%	24.0%
Bue	41.7%	40.7%	44.2%
Lion Nero	29.9%	30.3%	31.8%

B) *Comparison at the parish level*

	1325		1352			
Parish/Priory	N	%	N	%	Diff	Gonfalone
S. Firenze	58	12.0%	95	6.6%	+5.4%	Bue
S. Apollinari	41	8.5%	144	10.1%	-1.6%	Bue
S. Simone	102	21.2%	343	24.0%	-2.8%	Bue
S. Cecilia	10	2.1%	19	1.3%	+0.7%	Carro
S. Michele in Orto	7	1.5%	29	2.0%	-0.6%	Carro
S. Piero Scheraggio	83	17.2%	232	16.2%	+1.0%	Carro
S. Romolo	18	3.7%	39	2.7%	+1.0%	Carro
S. Stefano al ponte	19	3.9%	96	6.7%	-2.8%	Carro
S. Jacopo tra le Fosse	58	12.0%	190	13.3%	-1.3%	Lion Nero
S. Remigio/Romeo	86	17.8%	243	17.0%	+0.8%	Lion Nero
Total	482		1,430			
Unknown	61		0			

Notes: *officials didn't write down the parish for each household, hence the lower figure included here compared to the total listed households in the source (N=543)

Sources: Prestanza 1325, 496, Manoscritti, Archivio di Stato di Firenze, Florence; Estimo 1352, 306, Estimi, Archivio di Stato di Firenze, Florence; Online Catasto of 1427 [Machine Readable Data File Based on D. Herlihy and C. Klapisch-Zuber, Census and Property Survey of Florentine Domains in the Province of Tuscany, 1427-1480.]," Brown University. For the administrative division of parishes among *gonfaloni* and *sestieri*: Stella, Alessandro. "Fiscalità, Topografia E Società a Firenze Nella Seconda Metà Del Trecento." *Archivio Storico Italiano* 151, no. 4 (558) (1993): Appendices 2 and 3; Cohn, S.K. *The Laboring Classes in Renaissance Florence*. London: Academic Press, 1980: 32.

Given the lack of an all-encompassing source, it is entirely possible that the consistency shown between the *prestanza* and the subsequent taxation lists might be an overestimation of the relative stability within the quarter of Santa Croce. Admittedly, the massive mortality of the Black Death may have altered the demographic landscape of Florence significantly. Nevertheless, the lack of large differences at least suggests that the exclusion of households was not heavily clustered in a single *gonfalone* or, to a somewhat lesser extent, parish. Geographically, the omission of data thus appears to be random. The distance to the Arno does not predict if a household was included. For example, the *gonfalone* of Lion Nero encompassed the longest stretch of the riverbank in the quarter, yet both of its parishes seem to have been well presented in the loan. An explanation for the randomness probably lies in the method of collecting the levy. Similar to other taxes, the collection was spread over a longer period. [171] The sequence of parishes noted down in the source does not display any pattern: each folio mentions on average 7.11 of the included 10 parishes and the same parish is rarely repeated more than twice in a row. This suggests that households had to present themselves to a central office to pay their share instead of a more structured collection by officials who went from door to door. As a result, there was no fixed chronology or route that was followed. In such a system, the possible occurrence of a flood and the subsequent halt to payments does not affect the representativeness of the already included data.

Having established that the *prestanza* of 1325 contains a random sample of the richest citizens in the *sesto* of San Piero Scheraggio, the most important question that remains is which part was actually included? To this end, we try to estimate what share of the total urban population was represented by the number of taxed households in the forced loan and the *estimo* of 1352. Because the latter register encompasses the entire fiscal population, the ratio between the two registers allows us to estimate which part of the population was included in the *prestanza*. This relationship only holds true as long as the relative importance of the *sesto* or its corresponding *gonfaloni* remained stable vis à vis other localities in the city between the two dates. For instance, if the Black Death impacted demography in Santa Croce more negatively than in other quarters, we risk overestimating the share that contributed to the loan. Obviously, population figures for the different *sestieri* are missing before 1352 so there is no hard proof for the comparability of the two lists. At least within San Piero Scheraggio we could not observe radical shifts in settlement patterns (cfr. supra). Moreover, if we look at the fiscal importance of the parishes, their share remained roughly equal as well. In 1352, the *gonfaloni* Bue, Carro and Lion Nero represented 21.0% of the total Florentine wealth (34,959.5 lire out of the total 166,496 lire levied). Assuming a proportionate contribution by the cancelled 506 households in 1325, the fiscal importance of the *sesto* amounted to 19.9% of the total loan (543 households contributed 5,155 golden florins in the demanded 50,000

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[171] The source mentions 48 different sections of collections, though it is unclear what the criteria for this division was.

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for the entire city). Lastly, historians often assume that the Black Death was a universal killer. Although little is known about the selectiveness of plague mortality, they believe that plague only became more selective and less lethal as time progressed and that this was a long and non-linear process.[172] Taken together, there is no indication that the relative importance of San Piero Scherraggio, either fiscal or demographic, radically changed between 1325 and 1352. We can thus deduct the share of households included in the *prestanza* based on the information of the *estimo*.

In 1325, medieval Florence was at its demographic peak and historians estimate that the city boosted some 120,000 souls.[173] Since most tax registers only pertain to the head of the family and the number of associated residents is often unknown, this figure needs to be converted to the number of households. We therefore divide the aforementioned estimate by the mean size of Florentine families in 1380 (4.19 persons per family), which is the earliest observation we have for the fourteenth century.[174] The obtained result shows that the 1,049 households mentioned in the *prestanza* (543 collections and 506 cancelled contributions) represent 3.66% of the total Florentine population at that time. On the other hand, the *estimo* of 1352 registered 1,430 households in the same parishes, which amounted to 14.4% of the total fiscal population. The ratio between the two registers consequently suggests that only the richest quarter (25.5%) of the citizens of San Piero Scheraggio were forced to loan money to the government. This figure is a low estimate because the *estimo* did not include those without taxable property whereas the population figure for 1325 concerns the entire social strata living in Florence. Unfortunately, the *estimo* does not provide us with any information about the number of excluded households.

To extrapolate the distribution of wealth for the entire population, we may employ the methodology developed by Long Hong et al. to model left truncated income data.[175] In Chapter Five, we have already discussed how this was successfully applied to historic wealth taxes of medieval England.[176] The approach depends on making some *a priori* assumptions about the shape of the distribution, which remain contested in recent literature (see 5.1 The rich and powerful). The main advantage of the methodology is that it requires no additional information besides an estimate of the included population, which we calculated above. However, in our case, we also possess of a rough indication of the total wealth present in

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[172] Joris Roosen, "Severity and Selectivity of the Black Death and Recurring Plague in the Southern Netherlands (1349-1450)," *TSEG - The Low Countries Journal of Social and Economic History* 14, no. 4 (2018).

[173] Herlihy and Klapisch-Zuber, *Tuscans and their families*, 67-69; Day, "The population of Florence."

[174] Herlihy and Klapisch-Zuber, *Tuscans and their families*, 69.

[175] Long Hong et al., "Giniinc: A Stata Package for Measuring Inequality from Incomplete Income and Survival Data," *The Stata Journal* 18, no. 3 (2018).

[176] Guido Alfani and Hector García Montero, "Wealth inequality in pre-industrial England: A long-term view (late thirteenth to sixteenth centuries)," *The Economic History Review* forthcoming.

Florence around 1325 (see Chapter Four). Given that we know the tax rate and the total revenue of the forced loan (cfr. supra), we can easily calculate the share owned by the richest quarter of the population. It tells us that the collected 50,000 florins represented 91.9% of the total stock. Accordingly, we can plot the distribution more accurately and find a best fit through the least square method. In line with the methodology of Hong and most of the current literature, a lognormal regression proved best for the missing left-tail of the distribution ($R^2=0.994$, $p<0.001$). With the parameters known, we can calculate the share owned by each decile. They are reported in Appendix 5.3.

One final remark has to be made. For the above extrapolation, we assumed that the distribution within San Piero Scheraggio was representative for that of the wider community of Florence in 1325. Again, a confrontation with the *estimo* of 1352 and the *catasto* of 1427 may help us to establish if this was indeed the case. Table A5.2 compares the shares owned by each decile as well as the Gini coefficient between San Piero Scheraggio and the whole of Florence. It shows that differences were rather limited. On average, decile shares varied by 1.1% across both registers. The largest discrepancy was found between the top 10%. Likewise, the Gini coefficients for the *sesto* were well in line with those reported for the entire city (an average difference of 0.036 or circa 5%). Moreover, the relative trends observed between 1352 and 1427 are identical between the sample and the whole distribution. In both cases, inequality increased because the share owned by deciles 1 to 8 declined in favour of those at the top. In sum, it appears that San Piero Scheraggio provides us with a representative sample for the city at large.

TABLE A5.2 INEQUALITY IN SAN PIERO SCHERAGGIO AND THE WHOLE OF FLORENCE

Decile	1352 (share owned in %)			1427 (share owned in %)		
	S.P.S.	All	Diff.	S.P.S.	All	Diff.
1	1.6	1.7	-0.1	0.2	0.2	+0.1
2	2.5	2.2	+0.3	0.7	0.5	+0.2
3	2.6	2.9	-0.3	1.4	1.0	+0.4
4	3.5	3.6	-0.1	2.2	1.6	+0.6
5	4.5	3.9	+0.5	3.2	2.5	+0.7
6	5.7	5.1	+0.5	4.6	3.7	+0.9
7	7.3	6.7	+0.6	6.7	5.6	+1.1
8	10.2	9.3	+1.0	10.1	8.8	+1.4
9	15.8	14.6	+1.3	16.8	15.3	+1.4
10	46.3	50.1	-3.8	54.0	60.8	-6.8
Gini coeff.	0.568	0.588	-0.020	0.680	0.731	- 0.051

Notes: S.P.S. = San Piero Scheraggio; 1427 refers to taxable wealth without the fiscal poor
Sources: see table 5.1

5.2 The assise of Ypres in 1326

Amidst the Flemish peasant revolt (1323-28), a new popular faction rose to power in Ypres and ousted the governmental elites from the city in 1325. Shortly afterwards, the new aldermen reached out to Zeger Janssone, one of the major rebel leaders who were combatting the troops loyal to the count. Ypres would send soldiers and craftsmen to aid the revolt.[177] At home, the aldermen also prepared for war and ordered the construction of new fortifications around the suburbs of the city, which housed a substantial part of the textile workforce. An impressive earthen wall of more than seven kilometres long together with ten gates were being erected in the following months. To finance the immense building activity, an exceptional tax was imposed on the citizens living in the city and suburbs, called the *assisen van de nieuwe vestingen* or *pointinghe van der nieuwe veste*, in the winter of 1325-26. These tax registers offer us a unique opportunity to extrapolate the distribution of wealth in one of the most important cities in the County of Flanders before the Black Death. Of the original thirteen sheets of parchment, one was missing when Emile De Sagher and Guillaume Des Marez edited and published the city accounts of Ypres.[178] During World War One, nearly the entire city archives went up in flames, so no records of the tax have survived to date. The revenue amounted to 413.35 lb. gr. in total and was contributed by no less than 1,644 households. The missing page compromised data for 14.8 lb. gr. (3.6% of the total) levied in the vicinity of the Zuidstraat, a central axis and wealthy street that corresponds to the present Rijselstraat. The sum suggests that approximately 1,702 households would have been included in the entire list. Based on the average number of households per sheet, a similar figure of 1,713 households can be deduced. If we assume a population of 25,000 inhabitants, this means that circa one third (30.7%) of the total population contributed to the financing of the fortifications.[179]

Although the tax was levied among a significant part of the population, especially when compared to the groups included in taxes for Bruges in this period (see Chapter 5.1), it is unclear who was actually recorded. Since the inner city was already enclosed by a wall, it is plausible that only those citizens with property in the suburbs had to contribute and/or that

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[177] Sarah Smolders, "De opstand in Vlaanderen van 1323 tot 1328 vanuit Iepers perspectief" (Licentiaatsverhandeling (M.A. thesis), Katholieke Universiteit Leuven, 2001).

[178] Marez and de Sagher, *Comptes de la ville d'Ypres de 1267 à 1329*, 498-523.

[179] In line with the most common methodology for calculating urban populations in medieval Flanders, we estimate the average household size to be 4.5 persons. Population figure is based on an estimate for 1311-12 (i.e. 28,000 inhabitants) minus the ca. 3,000 deaths during the Great Famine of 1315-17. See Hans Van Werveke, "De omvang de Ieperse lakenproductie in de 14de eeuw," *Mededelingen van de Koninklijke Vlaamse Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Klasse der Letteren* 9, no. 2 (1947): 12-13; H. Van Werveke, "La famine de l'an 1316 en Flandre et dans les régions voisines," *Revue du Nord* 41, no. 161 (1959): 5-8; W. Prevenier, "La démographie des villes du comté de Flandre aux XIIIe et XVe siècles. Etat de la question. Essai d'interprétation," ibid.Numéro thématique: Moyen Âge (1983).

those living outside the inner walls were taxed at a higher rate. Indeed, the majority of the taxpayers had their residence in the suburbs (947 households or ±55.5% lived outside the inner walls versus 755 à 766 households or 44.5% lives inside them). Together, they paid 40.9% of the total revenue. This is surprising given that one would expect wealth to have been concentrated more heavily in a city centre during the Middle Ages. If we want to extrapolate the data of the *assise* to the entire city, we thus need to address this possible geographical bias. To make corrections, we need to know whether the suburbs are overrepresented. Peter Stabel has already described how the textile industry, especially the workshops themselves, became increasingly concentrated in the suburbs during the early fourteenth century.[180] This atypical pattern of economic organisation for the medieval Low Countries may explain why so many and wealthy households lived outside the inner walls. However, Stabel mainly relies on the exact same taxation list to arrive at these conclusions, so we need to look further into the matter. To do so, we can check whether the population density suggested by the *assise* is realistic in comparison to other medieval towns. If only 44.5% of the 25,000 inhabitants did indeed live in the inner city, encompassing around 80 hectares, than the density can be estimated at 139 inhabitants per hectare.[181] This is certainly plausible given that the medieval average is situated around 100 inhabitants per hectare based on a dataset of 57 European towns.[182] For example, in the neighbouring metropole of Bruges, around 62,376 people lived inside a newly walled area of 430 hectares (145 inh. per ha.).[183] In contrast, the suburbs of Ypres must have looked rather rural with only 13,875 citizens spread across 425.4 hectares (32.5 inh. per ha.).[184] Of course, settlement was mainly concentrated near the inner walls and along the main access roads. Here, the population density was undoubtedly higher, yet excavations of such an area still reveal a rather loose settlement pattern with detached houses and workshops, very different from the inner city with its terraced houses.[185] Thus, the new ramparts were not erected to accommodate the urban sprawl as in Bruges nor was it built with the idea of future demographic growth as the city had once attempted in the thirteenth century when population peaked at 40,000 inhabitants. Most likely, the aldermen in 1326 envisioned a defensive line or, more realistically, a psychological barrier for enemy troops

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[180] Stabel, *A Social History of Cloth Manufacture in Medieval Ypres*, 64-82.

[181] Estimated size based on the georeferenced Ferraris map of 1771-78 where the old city walls are clearly visible. Geopunt Vlaanderen Ver. December 2021, Digitaal Vlaanderen.

[182] Eltjo Buringh, "The Population of European Cities from 700 to 2000: Social and Economic History," *Research Data Journal for the Humanities and Social Sciences* (2021): figure 3.

[183] For the history of the fortifications and the size of the city, see Brown and Dumolyn, *Medieval Bruges: c. 850–1550*, 152-55.

[184] Size given in Jan Decorte and Marc Dewilde, "Historische stadskern van Ieper," (2014), https://inventaris.onroerenderfgoed.be/erfgoedobjecten/140005.

[185] Stephan Van Bellingen, Marc Dewilde, and Octaaf Mus, "De verdwenen Sint-Michielswijk te Iper (prov. West-Vlaanderen). Interimverslag 1993," *Archeologie in Vlaanderen* 3 (1993): 272-76; Marc Dewilde and F. Wyffels, "Archeologisch onderzoek in de "Verdronken Weide" te Ieper (W.-Vl.)," *Archaeologia Mediaevalis* 24 (2001).

given the impossibility to man such a long wall with so few people. It also helped to consolidate the all-important suburbs as part of the urban economy. In any case, the ratio between the number of households in the suburbs and in the inner city does seem plausible based on economic and demographic patterns.

Aside from a demographical bias, the source may also suffer from a socio-economic bias like the vast majority of medieval tax records. The minimum quote of 12 d. gr., the equivalent of two weeks of unskilled work (see Appendix 1), suggests that only wealthier inhabitants were included. To complicate matters further, the *assise* lists a special category of 46 taxpayers for the inner city. Whereas all contributions are listed according to location, the last ones have no such indication and refer exclusively to women. Their respective quotes are also much higher than the average levy (618.5 d. gr. versus 42 d. gr. on average). For example, lady Clare Belles, the most heavily taxed person in the entire list, paid six times the maximum quote found among the other categories of contributors. In a footnote, Des Marez and De Sagher explain that these women were all wives and widows of the former political elites who were banned from the city during the revolt of 1325 (cfr. supra).[186] Although the political repression was accompanied by economic repression in the form of extensive confiscations (cfr. infra), there is no reason to assume that this also resulted in higher tax rates for this particular group. Many of the banned elites belonged to the wealthiest families of Ypres, such as the Belle, Paeldinc, Waghenare, or Broederlam, so we should expect them at the very top of the distribution.[187] Moreover, only four households paid a quote above the maximum found in the other categories of the *assise*. All others fall well within the normal range. For instance, the wife of Willem Puteroets only contributed the minimum quote of 12 d. gr. Finally, there was also no advantage to tax them more heavily because a significant share of their income would eventually be confiscated in the following months.

Taken together, the taxation of 1326 seems to give us a fairly representative image of the distribution at the top of Ypres' society. Before we can model the bottom in accordance with the methodology employed for Florence (see Appendix 5.1), we still need to determine the tax rate however. Like in many other medieval taxation registers, the preamble remains unfortunately mute on the subject. Realistically, this rate must fall between two extreme hypothetical scenarios. On the one hand, we may assume that all remaining households were excluded from taxation because they simply did not own any assets. If so, the rate is equal to the total levy divided by the total stock of wealth, which we calculated in Chapter Four. On the other hand, we may also assume that all remaining households were excluded because their wealth was valued just one groot below the minimum threshold. In this theoretical scenario, we may assign them with a quote of 11.99 d.gr., add the result to the total levy, and

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[186] Marez and de Sagher, *Comptes de la ville d'Ypres de 1267 à 1329*, 509.
[187] Stabel, *A Social History of Cloth Manufacture in Medieval Ypres*, 103-04.

divide this sum by the total stock of wealth. Based on the two extremes, an interval between 0.247% and 0.366% can be calculated for the tax rate. The difference seems small, but the former implies that the top 30% of the distribution held all wealth whereas the latter suggests that their share 'only' amounted to 76.6% of the total. We thus need to narrow the estimate down.

Another fiscal document related to the revolt may hold the answer. The wives and widows of the elites who got banned from the city in 1325, did not only have to contribute to the taxes for the fortifications, some of their movables and their main form of income, namely their different rents, were all being confiscated in the accounting year 1327-28. The movables were auctioned and provided the city treasury with 893.1 lb. gr. In contrast, the rents nor the properties that generated them were sold but rather collected for one year. They accumulated 2,769.7 lb. gr. and were meticulously recorded.[188] Due to the ongoing disturbances of the Peasant Revolt and the limited power of the rebellious aldermen over the wider region, the collections were mainly concentrated in or in the near vicinity of the city. In other words, they mainly pertain to urban assets and do not reflect the entire portfolio of the banished elites. Nevertheless, the stock of houses may help us to establish a new upper bound for our tax rates. In the medieval County of Flanders, it was common for officials, such as tax collectors, to estimate the value of houses by multiplying the rental value by twenty.[189] As such, it is possible to estimate the total worth of these assets and confront them with the quotes in the taxation register. Based on the number of rents, some elites had invested a substantial part of their wealth in houses in Ypres. Whereas they owned more than ten houses and / or apartments in Ypres, their peers generally rented out only one (based on the median of 35 confiscations; average of 8 properties). Table A5.3 lists the number of houses or apartments, the annual rent, estimated value, and implied tax rate for all these real estate tycoons who figured in the *assise* of 1326. The case of Lambrecht Morins is particularly interesting. With a quote of 480 d. gr., he did not belong to the ultra-rich of Ypres but he was certainly a wealthy man (top 2%). The confiscations reveals that he owned no less than 11 apartments and 14 houses, including one stone palace he occupied himself, all situated in the city. Together, they provided him with an income of 36.2 lb. gr. or the equivalent of circa three years of unskilled labour.[190] If we confront this figure with his quote, we arrive at a new upper bound of 0.276% for the tax rate.

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[188] Marez and de Sagher, *Comptes de la ville d'Ypres de 1267 à 1329*, 600, 785.

[189] See for example the case of Ghent: Nicholas, *The Metamorphosis*, 100.

[190] Marez and de Sagher, *Comptes de la ville d'Ypres de 1267 à 1329*, 633-34.

TABLE A5.3 IMPLIED TAX RATE BASED ON CONFISCATED HOUSING RENTS (1327-28)

Name	Quote (in d. gr.)	Houses (N)	Annual rent (in d. gr.)	Est. value (in d. gr.)	Implied upper tax rate (%)
Jan Bieseboud	720	15	6,659	133,185	0.541
Michiel Belle	240	18	4,038	80,760	0.297
Wouter Haringe	720	26	5,925	118,500	0.608
Jacop van Houtkerke	720	24	8,676	173,520	0.415
Lambrecht Morins	480	25	8,690	173,800	0.276

Sources: Marez and de Sagher, *Comptes De La Ville D'ypres De 1267 À 1329*, 600-636

A tax rate of 0.276% implies that the households contained in the *assise*, or the top 30% of society, owned 89.6% of the total wealth. Although this figure might seem high, it is well in line with contemporary observations for Prato (D8-D10 owned 81.8% of total) and our calculations for Florence (94.2% of total), which had rather similar economies at that time.[191] While we may argue that housing rents did not make up the entire wealth of Lambrecht Morins and we therefore need to adjust the tax rate even more downwards, a substantial revision seems unwarranted. A significant lower tax rate would imply that Ypres was more unequal than Florence, one of the largest and richest cities in medieval Europe. In absence of a better estimate, we subsequently employ the tax rate of 0.276% to model the lower end of the distribution. Armed with the necessary information, we plotted the known part of the distribution and subsequently determined the best fit through a lognormal regression. The resulting shares per decile are reported in Appendix 5.3.

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[191] For Prato, see Guido Alfani and Francesco Ammannati, "Long-term trends in economic inequality: the case of the Florentine state, c. 1300–1800," *The Economic History Review* 70, no. 4 (2017).

5.3 Distributions and weights of Florentine communities

A) Cities with high wealth: Florence

	1325		1427	
Variable	*Share (% of total)*	*Wealth owned (kg. Ag.)*	*Share (% of total)*	*Wealth owned (kg. Ag.)*
Deciles				
1	0.02	0.11	0.2	1.70
2	0.03	0.16	0.5	5.25
3	0.09	0.41	1.0	9.96
4	0.22	1.04	1.6	15.95
5	0.55	2.63	2.5	24.31
6	1.39	6.64	3.7	36.37
7	3.51	16.73	5.6	54.78
8	8.86	42.18	8.7	86.07
9	22.33	106.34	15.3	150.81
10	62.99	300.00	60.9	598.81
Percentiles of the top 10%				
91	3.66	17.42	2.8	27.75
96	6.43	30.60	6.1	59.53
100	19.00	90.49	22.6	222.39
Wealth per capita (kg. Ag.)	4.76		9.84	
Demographic weight (%)	12.08		14.29	

Sources: "Prestanza 1325." Florence: Archivio di Stato di Firenze; Herlihy, D., and C. Klapisch-Zuber. "Online Catasto of 1427 [Machine Readable Data File Based on D. Herlihy and C. Klapisch-Zuber, Census and Property Survey of Florentine Domains in the Province of Tuscany, 1427-1480.]." edited by David Herlihy, C. Klapisch-Zuber, R. Burr Litchfield and Anthony Molho. Providence: Brown University, 2002; Table 4.1; Appendix 5.1.

B) Cities with average wealth: San Gimignano

Variable	1277		1427	
	Share (% of total)	*Wealth owned (kg. Ag.)*	*Share (% of total)*	*Wealth owned (kg. Ag.)*
Deciles				
1	0.62	2.08	0.14	0.35
2	1.14	3.81	0.44	1.12
3	1.22	4.10	0.99	2.53
4	1.22	4.10	1.81	4.63
5	1.22	4.10	2.87	7.36
6	2.72	9.13	4.34	11.13
7	4.58	15.36	7.22	18.49
8	9.64	32.35	12.03	30.83
9	20.05	67.28	18.98	48.62
10	57.60	193.31	51.19	131.16
Percentiles of the top 10%				
91	3.84	12.89	3.20	8.19
96	5.43	18.21	6.03	15.44
100	16.70	56.05	11.10	28.44
Wealth per capita (kg. ag.)	3.36		2.56	
Demographic weight (%)	6.50		10.13	

Sources: Enrico Fiumi, *Storia Economica E Sociale Di San Gimignano* (Firenze: Leo S. Olschki, 1961), 114; Herlihy and Klapisch-Zuber. "Online Catasto of 1427"; Table 4.1.

C) Cities with low wealth: Prato

Variable	1325		1427	
	Share (% of total)	*Wealth owned (kg. Ag.)*	*Share (% of total)*	*Wealth owned (kg. Ag.)*
Deciles				
1	1.58	2.86	0.61	1.05
2	1.82	3.30	0.61	1.05
3	1.98	3.59	0.97	1.67
4	2.14	3.88	1.81	3.11
5	2.27	4.12	2.71	4.65
6	2.49	4.51	3.82	6.56
7	5.93	10.75	7.03	12.07
8	6.69	12.13	11.46	19.68
9	9.39	17.02	17.39	29.86
10	65.72	119.15	53.59	92.02
Percentiles of the top 10%				
91	2.09	3.79	3.53	6.05
96	6.52	11.82	5.66	9.72
100	29.18	52.90	13.04	22.39
Wealth per capita (kg. Ag.)	1.81		1.72	
Demographic weight (%)	3.16		3.69	

Sources: Alfani and Ammannati, "Long-Term Trends," table 4; Herlihy and Klapisch-Zuber. "Online Catasto of 1427";
Table 4.1.

D) Contado: Poggibonsi

Variable	1338		1427	
	Share (% of total)	*Wealth owned (kg. Ag.)*	*Share (% of total)*	*Wealth owned (kg. Ag.)*
Deciles				
1	0.60	0.59	0.41	0.20
2	2.34	2.30	1.04	0.51
3	5.64	5.56	1.77	0.88
4	5.71	5.63	2.52	1.25
5	5.71	5.63	3.62	1.79
6	5.76	5.68	5.35	2.65
7	6.54	6.44	7.82	3.87
8	8.37	8.26	11.93	5.90
9	12.14	11.97	18.80	9.31
10	47.20	46.54	46.75	23.14
Percentiles of the top 10%				
91	2.16	2.13	3.13	1.55
96	5.00	4.93	5.53	2.74
100	16.40	16.17	8.98	4.44
Wealth per capita (kg. ag.)	0.99		0.50	
Demographic weight (%)	28.70		47.51	

Sources: Alfani, "Economic Inequality in Preindustrial Times," online dataset, figure 4 (distributions); Herlihy and Klapisch-Zuber. "Online Catasto of 1427"; Table 4.1.

E) Distretto: San Gimignano

Variable	1290		1427	
	Share (% of total)	*Wealth owned (kg. Ag.)*	*Share (% of total)*	*Wealth owned (kg. Ag.)*
Deciles				
1	1.06	0.99	0.19	0.10
2	1.05	0.98	0.56	0.29
3	1.05	0.98	1.19	0.62
4	1.54	1.44	2.29	1.20
5	2.73	2.56	4.34	2.27
6	2.73	2.56	5.82	3.05
7	7.15	6.70	8.30	4.34
8	10.78	10.10	13.19	6.90
9	23.11	21.66	20.70	10.83
10	48.80	45.72	43.43	22.71
Percentiles of the top 10%				
91	3.23	3.03	3.47	1.81
96	5.99	5.61	4.60	2.41
100	8.70	8.15	7.70	4.03
Wealth per capita (kg. ag.)	0,94		0,52	
Demographic weight (%)	49.57		24.38	

Sources: Fiumi, *Storia Economica E Sociale Di San Gimignano* (Firenze: Leo S. Olschki, 1961), 114; Herlihy and Klapisch-Zuber. "Online Catasto of 1427"; Table 4.1.

5.4 Distributions and weights of Flemish communities

A) Cities with high wealth: Ypres and Bruges

Variable	1326: Ypres		1394-96: Bruges	
	Share *(% of total)*	*Wealth owned* *(kg. Ag.)*	*Share* *(% of total)*	*Wealth owned* *(kg. Ag.)*
Deciles				
1	0.33	1.63	2.92	19.45
2	0.25	1.23	5.07	33.81
3	0.44	2.15	5.21	34.73
4	0.77	3.78	5.21	34.73
5	1.35	6.62	5.21	34.73
6	2.38	11.62	5.69	37.94
7	4.17	20.37	9.08	60.53
8	6.83	33.42	10.57	70.45
9	10.45	51.08	15.30	101.96
10	73.03	357.10	35.74	238.27
Percentiles of the top 10%				
91	2.12	10.37	2.22	14.83
96	5.55	27.12	3.93	26.16
100	40.24	196.75	8.92	59.47
Wealth per capita (kg. ag.)	4.89		6.67	
Demographic weight (%)	22.18		8.83	

Sources: Marez and de Sagher, Comptes De La Ville D'Ypres, 498-523; De Meyer, Ingrid. "De Sociale Strukturen te Brugge", table V; table 4.2; Appendix 5.2.

B) Cities with average wealth: Nieuwpoort and Kortrijk

Variable	1313: Nieuwpoort		1440: Kortrijk	
	Share (% of total)	Wealth owned (kg. Ag.)	Share (% of total)	Wealth owned (kg. Ag.)
Deciles				
1	0.99	2.03	1.70	5.54
2	1.83	3.75	3.21	10.44
3	2.78	5.69	3.50	11.38
4	3.66	7.48	3.50	11.38
5	4.21	8.61	3.69	12.01
6	4.99	10.20	4.50	14.64
7	6.35	12.98	5.52	17.94
8	8.56	17.49	7.92	25.76
9	13.33	27.24	12.75	41.46
10	53.29	108.93	53.70	174.61
Percentiles of the top 10%				
91	2.2	4.42	2.24	7.27
96	4.5	9.20	5.85	19.02
100	24.5	50.14	19.12	62.17
Wealth per capita (kg. ag.)	2.04		3.25	
Demographic weight (%)	17.82		16.12	

Sources: de Noortvelde, Robert. *Nieuport. Documents Historiques: Sigillographie, Topographie, Comptes, Cadastre, Épitaphier, Etc*. Vol. 2, (Oostende: Imprimerie Centrale Albert Bouchery, 1904), 111-166; Pauwelyn, Cecile. "De Gegoede Burgerij Van Kortrijk in De 15e Eeuw (1433-1496)." In *Studiën Betreffende De Sociale Strukturen Te Brugge, Kortrijk En Gent in De 14e En 15e Eeuw*, edited by W. P. Blockmans, Ingrid De Meyer, J. Mertens, C. Pauwelyn and W. Vanderpijpen. (Heule: UGA, 1971); table 4.2.

C) Cities with low wealth: Oostende

	1411	
Variable	*Share (% of total)*	*Wealth owned (kg. Ag.)*
Deciles		
1	1.60	2.93
2	2.08	3.80
3	3.11	5.67
4	3.67	6.70
5	6.21	11.35
6	6.36	11.63
7	9.57	17.49
8	12.42	22.69
9	19.09	34.88
10	35.89	65.57
Percentiles of the top 10%		
91	2.82	5.15
96	4.03	7.35
100	5.7	10.42
Wealth per capita (kg. ag.)	1.83	
Demographic weight (%)	4.47	

Sources: Zoete, A. *De Beden in Het Graafschap Vlaanderen Onder De Hertogen Jan Zonder Vrees En Filips De Goede (1405-1467).* (Brussel: Paleis der Academiën, 1994), Appendix XIII; table 4.2.

D) Countryside before divergence: Sint-Winoksbergen

	1304	
Variable	*Share (% of total)*	*Wealth owned (kg. Ag.)*
Deciles		
1	0.48	0.77
2	1.32	2.10
3	2.16	3.42
4	3.03	4.81
5	3.92	6.22
6	5.15	8.18
7	6.87	10.90
8	9.34	14.82
9	14.37	22.80
10	53.36	84.68
Percentiles of the top 10%		
91	2.17	3.45
96	3.36	5.34
100	29.03	46.07
Wealth per capita (kg. ag.)	1.59	
Demographic weight (%)	60.00	

Sources: Lambrecht, Thijs, and Mathijs Speecke. "Economic Structures, Vulnerability and Popular Protest in Rural Flanders, C. 1300-1320." (forthcoming); table 4.2.

E) Coastal Flanders: Eiesluis

Variable	1398	
	Share *(% of total)*	*Wealth owned* *(kg. Ag.)*
Deciles		
1	0.31	0.61
2	1.01	2.03
3	1.70	3.41
4	2.47	4.96
5	3.36	6.75
6	4.87	9.77
7	7.14	14.33
8	10.61	21.28
9	17.95	36.01
10	50.57	101.45
Percentiles of the top 10%		
91	3.07	6.17
96	5.77	11.57
100	12.13	24.33
Wealth per capita (kg. ag.)	2.01	
Demographic weight (%)	31.26	

Sources: Bruges, OCMW-Archief, St-Jan, A 11. Data provided by Tim Soens.

F) Inland Flanders: Kortrijk

| | 1440 | |
Variable	Share (% of total)	Wealth owned (kg. Ag.)
Deciles		
1	4.30	8.20
2	5.00	9.55
3	5.46	10.42
4	6.54	12.48
5	6.59	12.58
6	7.65	14.59
7	8.85	16.88
8	10.75	20.50
9	13.84	26.41
10	31.02	59.18
Percentiles of the top 10%		
91	2.02	3.86
96	3.16	6.03
100	8.27	15.78
Wealth per capita (kg. ag.)	1.91	
Demographic weight (%)	39.32	

Sources: D'Hoop, Marc. "Sociaal-Ekonomische Strukturatie En Situatie Van De Kortrijkse Buitenpoorters (2e Helft 14de -1e Helft 15de Eeuw)." Licentiaatsverhandeling, Rijksuniversiteit Gent, 1980; Zoete, A. *De Beden in Het Graafschap Vlaanderen.* (Brussel: Paleis der Academiën, 1994), Appendix XIII; table 4.2.

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