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On the Bureaucracy of Bureaucracies: Analyzing the Size and Organization of Overhead in Public Organizations

Abstract

Governments across the globe try to re-balance their budgets by rationalizing overhead operations. When overhead-reducing policies are adopted, it is important to understand why some central government organizations have a higher overhead than others, and why organizational models to produce overhead efficiencies are used to different extents. This study focuses on the Flemish context to analyze differences between central government organizations in the size and organization of two overhead processes: human resources management (HRM) and finance and control (FIN). Significant effects are found for autonomy, organizational size, spatial dispersion and budgetary stress, yet effects vary according to whether HRM or FIN is considered and whether the focus is on the size or the organization of HRM or FIN. Our findings have practical implications to get a process-sensitive understanding of the size and organization of overhead, and theoretical implications as they cast light on factors that shape decision-making in public organizations.

Key words: overhead; public organizations; human resources management; financial management

INTRODUCTION

One of the most enduring questions in the theory and practice of public administration relates to the optimal size of bureaucracy for the delivery of public services (Andrews and Boyne, 2014). The question is particularly pervasive regarding the overhead of public organizations, which can be seen as “the bureaucracy of bureaucracies”. Organizational overhead refers to the

expenditures that organizations invest in a variety of overhead functions aimed at supporting employees in the primary production process (Huijben, Geurtsen, and van Helden, 2014).

In response to the global financial crisis, many governments attempt to reduce expenditures on overhead functions in central bureaucracies, arguing that the scant available resources should be redirected to frontline services where they directly matter to societal actors (OECD, 2015). As a result, overhead is often discussed in negative terms as an indicator of government waste. This study argues that such a view conflicts with studies showing that organizations require sufficient overhead capacity to perform (Andrews & Boyne, 2011; Meier & O'Toole, 2010; Rutherford, 2015) or to insulate them from environmental shocks (Meier & O'Toole, 2009; O'Toole & Meier, 2010), and that this capacity is contingent on a set of organizational and environmental characteristics (Andrews & Boyne, 2014; Boyne & Meier, 2013). Furthermore, several ongoing reforms aim to re-centralize previously fragmented and duplicated overhead processes as a means to achieve economies of scale and scope during periods of fiscal stress (OECD, 2015). These reforms, emphasizing re-centralization and the re-introduction of more hierarchical relationships between organizations and central government, might conflict with existing models and logics of overhead production in central government organizations (Tonkiss, 2016).

The present study contributes to a body of work that has examined differences in overhead sizes according to organizational and environmental characteristics. First, research has mainly analyzed differences in overhead expenditures between organizations in similar institutional settings, which leads to the question whether the effects that were found are valid across policy sectors. Second, research has focused on a limited set of potential determinants of differences in overhead expenditures related to organizational size, structural complexity and environmental turbulence (Boyne & Meier, 2013). Third, research has insufficiently recognized

that overhead is not a homogenous collection of similar processes, but that it is comprised of a wide array of domains related to human resources, financial management, facilities and so forth, which differ in important characteristics (Ting, Dollery, & Villano, 2014). Fourth, despite the ongoing crisis climate that leads public organizations to rationalize their overhead and to focus their resources on core tasks, little is known about whether and why organizations choose different organizational models for achieving the required efficiencies. Yet how overhead is organized can have a great impact on the overall size of overhead (Huijben et al., 2014).

The present study analyzes differences in overhead expenditures between central government organizations. Central government organizations that vary in autonomy and task are theoretically intriguing but empirically understudied. Because most studies examine organizations within the same sector, empirical support for the importance of task and autonomy for overhead management is lacking. This is problematic during a time when many central governments are attempting to reorganize overhead functions across policy sectors.

Two overhead processes are taken into account: human resources management (HRM) and finance and control (FIN). In addition to examining determinants in overhead expenditures between public organizations, this paper analyzes differences in the extent to which overhead is organized in-house. The following research questions are addressed: What explains differences between public organizations in their expenditures on HRM and FIN overhead? (RQ1); What explains differences between public organizations in the extent of in-house organization of HRM and FIN overhead functions? (RQ2).

In what follows, we first outline the background of this study: What exactly is overhead, and what has already been written on the topic? After providing a theoretical framework for understanding the size and organization of overhead, we give an overview of the research

design of the study. We lastly present our findings, which are then summarized and discussed in the final sections of the article.

ORGANIZATIONAL OVERHEAD: WHAT? HOW MUCH? HOW TO ORGANIZE?

Organizational overhead refers to the expenditures that organizations invest in a variety of overhead functions aimed at supporting employees in the primary production process (Huijben et al., 2014). Overhead functions can refer to a large number of tasks within different processes, including HRM, information technologies, finance and control, communication, legal affairs and facility services. Overhead functions are devoted to advising, supporting and/or facilitating the activities and performance of the primary production process (Andrews and Boyne, 2014).

The size of organizational overhead

Differences in the size of overhead expenditures has been the subject of academic and practitioner debate for decades (Pondy, 1969; Tosi and Patt, 1967) and has regained importance with the advent of the global financial crisis that requires governments to work more efficiently (Boyne and Meier, 2013). In particular in earlier writings, scholars have discussed the growth of organizational overhead as one of many dysfunctions of bureaucracy. Downs (1967) has argued that “as the organization grows, the proportion of all activity therein devoted to direct action declines, and the proportion devoted to internal administration rises” (p.141). This negative perspective on overhead resonates with current rhetoric and policies in many governments. Overhead is seen as something to reduce as much as possible, sometimes being commented through telling metaphors as the “fat”, “self-rising flour” (Huijben et al., 2014, p.27) or “cold hands” of organizations (OECD, 2015, p.12).

More recently, scholars have argued that such a negative view on overhead overlooks the need for organizations to have the capacity to respond to problems as they occur (Andrews & Boyne, 2011; O'Toole & Meier, 2010; Rutherford, 2015). Research in this stream has focused on two core interests: analyzing the effects of overhead on performance; and examining determinants of differences in overhead expenditures. Related to the first interest, evidence suggests the existence of a tipping point at which the initially positive effects of overhead on performance turn negative (Tullock, 1965). There are initial positive effects as organizations require a sufficient level of overhead to function. The precise level of overhead at which the positive effects on performance 'tip' towards negative effects is contingent upon a variety of organizational characteristics.

This observation forms the impetus of the second interest that examines differences in overhead requirements between public organizations. Bureaucratic organizations are often complex, large and difficult to manage. Their effective functioning is dependent upon the creation of a cadre of staff responsible for supporting organizational activities (Andrews and Boyne, 2014). Research has found that differences in organizational size, structural complexity and turbulence in the environment are associated to different overhead expenditures. Yet most findings are based on research on private sector organizations, often in the manufacturing business (Pondy, 1969; Rushing, 1967), or on public organizations that belong to the same sector such as universities or school districts (Andrews and Boyne, 2014; Boyne and Meier, 2013; Rutherford, 2015), hospitals (Tosi and Patt, 1967) or local authorities (Andrews and Boyne, 2009; Ting, Dollery, and Villano, 2014).

The present study analyzes differences in overhead expenditures between organizations across policy sectors belonging to the Flemish central government level. Central government organizations are theoretically intriguing and empirically understudied. In past decades public

organizations have been subjected to various reform initiatives, the position of whom towards the role of overhead is highly ambiguous. On the one hand, the ultimate aim of many reforms was to make the public sector less bureaucratic and more lean. On the other hand, these initiatives posed significant organizational challenges for line organizations that could only be met through bigger or better overhead capacity within organizations (Andrews & Boyne, 2011). For instance, several autonomized organizations operate at arm's length from direct ministerial control, but are subjected to a variety of indirect control instruments that involve the collection of performance information by overhead staff. These indirect and top down controls have intensified in the context of fiscal stress brought about by the recession (Tonkiss, 2016). Yet we know little about the extent to which organizations of various degrees of autonomy that are active in different task environments require more overhead, and whether they organize overhead differently.

Authors have also reflected on the importance of the nature of the primary task for the organization of (overhead) services. The extent to which tasks are measurable, specific, strategic and non-imitable impact the volume and complexity of transactions within an organization, which in turn affects the optimal organizational model (Williamson, 1979). Yet it remains unclear to what extent public sector organizations follow this rational-strategic model of decision-making (Battaglio & Ledvinka, 2009), or whether the size and organization of overhead processes follow a similar logic compared to primary production processes which have been studied far more extensively.

We now turn to a second theme this study addresses: how overhead is organized differently in various organizations.

Models for organizing overhead

The global financial crisis increasingly led public organizations to seek efficiencies in their internal operations (OECD, 2015). Therefore, it is essential for practitioners and academics that study organizational overhead to consider different organizational models that may produce cost savings in service provision. This study focuses on one of the classic questions in organization studies: whether to organize overhead in-house or to externalize the organization of overhead (Williamson, 1979).

First, managers can *organize overhead in-house*. Elston (2015, p.2) summarizes the main advantages of in-house organization:

“The main advantage is that a single authority has ultimate control over all the resources required to deliver the organization’s outputs. Services are designed to meet specific requirements, delivered to particular timetables, and resourced flexibly according to changing local priorities. Service providers have an intimate understanding of needs, risks and long-term strategy in the organization, and liaise closely with frontline managers to develop best-fit solutions. External accountability is also clearer, since executives cannot blame third parties for resourcing problems that adversely affect the organization’s performance.”

Second, managers can *externalize the organization of overhead* to an organization outside government (“outsourcing”) or within government (“centralizing”). Outsourcing refers to an organizational form of service provision in which a public organization remains responsible for providing a service that is, in fact, delivered by an operator external to the public organization (Pollitt and Bouckaert, 2011). Advocates of outsourcing argue that public production models are inefficient and that market mechanisms should be introduced to create competition in service provision, thus stimulating cost reductions (Savas, 1987). In addition, managers can centralize the production of overhead activities within government. Following the idea that ‘big

is beautiful’, this perspective holds that larger and centralized organizations provide services more efficiently due to greater economies of scale and scope.

Literature on coordination has long held that in-house and externalized delivery models pursue distinct coordinative goals, at the neglect of others (Elston & MacCarthaigh, 2016). Wildavsky (1987) distinguishes between the goals of ‘efficiency’ and ‘reliability’. Coordination to achieve efficiency aims to create an output with the smallest possible input of resources, and to avoid duplication, overlap and redundancies. Coordination to achieve reliability aims to make sure that services are delivered at all times. While externalized arrangements are devoted to maximizing the efficiency of overhead operations at the neglect of their reliability, in-house arrangements prioritize the reliability of overhead operations at a certain economic cost.

Despite the ongoing crisis climate which leads public organizations to rationalize their overhead and focus their resources on core tasks, little is known as to whether and why public organizations choose different organizational models for achieving the required efficiencies. Also, research has insufficiently recognized that overhead is comprised of a wide range of tasks that vary in important characteristics. This study addresses this limitation by analyzing the effect of each determinant on two overhead processes: human resources management (HRM) and finance and control (FIN). Both HRM and FIN have been subjected to decentralizing and re-centralizing reforms linked to New Public Management (NPM) and post-NPM which transformed how different activities were organized (Shim, 2001; Tonkiss, 2016), and thus make an interesting case to examine how consecutive and layering, though often contradictory, administrative doctrines affect administrative behavior (Pollitt & Bouckaert, 2011).

HRM and FIN are also different in several important respects. The HRM process is more formalized compared to the FIN process in the Flemish context. Activities related to the

recruitment, evaluation and remuneration of civil servants are written down in a framework law, whereas the FIN process is more characterized by hybridity (Verhoest et al., 2012). Furthermore HRM is characterized by a large number of underlying activities that differ in their degree of strategic importance and standardizability (e.g. benefits administration versus HR business partner – see Lepak, Bartol, & Erhardt, 2005), whereas FIN activities are more homogenous, control-oriented, strategically important and organized at higher levels in the organization (Mintzberg, 1979).

THEORETICAL FRAMEWORK

Our main interest is in the analysis of two understudied variables that might be integral to understanding overhead management of organizations across sectors: autonomy and primary task.

From the 1980s onwards, governments across the globe have engaged in NPM reforms which broadly aimed to make the public sector more efficient, professional and “business-like” (Pollitt and Bouckaert, 2011). One of the key instruments was to create autonomous agencies and give additional autonomy to existing public organizations. The relation between autonomy and organizational overhead is theoretically ambiguous. On the one hand, the big promise of autonomization reforms was to create specialized entities that perform their tasks more efficiently. Extended managerial autonomy encourages organizations to modernize their management and rationalize their internal overhead operations (Osborne and Gaebler, 1992). Therefore, the following hypothesis is posed:

H1: More autonomous organizations will have less HRM and FIN overhead compared to less autonomous organizations.

On the other hand, formal-structural requirements may lead to a higher overhead among more autonomous agencies. Monitoring autonomous agencies comes at a cost at the agency level because of monitoring costs, bonding costs, and a residual loss (Jensen & Meckling, 1976). Agencies must develop and employ systems to measure, manage, and evaluate results, which translates into additional overhead. Also, as organizations achieve greater levels of autonomy they are able to buy, manage, and sell their own assets, act as the legally recognized employer of their employees, save money, be active in the capital market, and launch (or participate in) court cases. Under these extended degrees of autonomy, larger numbers of employees may be involved in overhead functions to support their management in making the right use of its extended managerial freedoms. There is also a psychological-behavioral argument to expect more overhead in autonomous organizations. Being more visible as free-standing organizations and hence more vulnerable to criticism, they might look at overhead as necessary support for their primary processes and a way to reduce the risk of external criticism. Therefore, the following alternative hypothesis is proposed:

H2: More autonomous organizations will have more HRM and FIN overhead compared to less autonomous organizations.

We further expect that the level of autonomy will impact how overhead is organized by public organizations. Because of formal-structural requirements, we expect *less* autonomous organizations to have more in-house organized overhead. In the Flemish civil service, less autonomous organizations need to uphold to a wider array of regulations and procedures when performing overhead activities, for instance when recruiting employees. One of the effects of these regulations is an increased complexity of the environment, because of the numerous situations that are covered in the regulatory framework. Increased in-house overhead, then, is a response to having to understand and manage this complexity (Thompson, 1967). Furthermore,

advocates of NPM reforms have emphasized the importance of hands-on entrepreneurial management. Autonomous agencies are expected to make rational decisions about how to structure and manage their internal operations, and to be more likely to externalize parts of their overhead that can be delivered more efficiently by other parties. Thus, the following hypothesis is formulated:

H3: More autonomous organizations will have less HRM and FIN overhead that is organized in-house compared to less autonomous organizations.

Transaction-cost theory predicts that there will be clear differences in cost structure based on the primary task of an organization (Williamson, 1979). The nature of the primary task directly influences the number and complexity of transactions within an organization, which affects the nature and volume of overhead. Service delivery organizations provide services that are relatively standardizable, measurable and predictable (Van Thiel & Yesilkagit, 2014). Policy-formulating, (re)distributive, and regulatory organizations provide services that are more asset-specific (often requiring expert knowledge), difficult to measure and uncertain. Supporting these functions requires specialized knowledge and a greater investment in overhead. Thus, the following hypothesis is formulated:

H4: Service delivery organizations will have less HRM and FIN overhead compared to policy-formulating or regulatory organizations.

Transaction-cost theory further proposes that the nature of the primary task and the related volume and complexity of internal transactions affects the likelihood that overhead will be organized in-house. As mentioned, service delivery organizations have been associated with more easily measurable outputs and processes, but also with larger operational budgets for staff and equipment (Wilson, 1989). Because service delivery organizations are better equipped to codify their processes, and to have higher operational budgets to set up monitoring schemes,

we expect them to be more likely to externalize overhead. We formulate the following hypothesis:

H5: Service delivery organizations will have less HRM and FIN overhead that is organized in-house compared to policy-formulating or regulatory organizations.

Previous research has mostly examined the relation between the size of overhead and three determinants: organizational size, structural complexity (spatial dispersion), and environmental turbulence. We introduces these ‘classic determinants’ as controls. Table 1 presents an overview of the expectations that can be formulated.

[Insert Table 1 Here]

RESEARCH DESIGN

Research context

The research context is the civil service of the Flemish government. Flanders is a region in the Federal Belgian state with its own parliament, government and public sector. Belgium is a dual federalist system. This means that the regional governments exercise the powers accorded to them without interference from the federal government. In this sense, the Flemish government is comparable with a full-fledged nation-state for the competences it was accorded. These competences include (but are not limited to) education, health, cultural affairs, spatial planning, housing, nature, energy, environment, and labor market policies. Table 4 in appendix provides more detailed information of the central government organizations included in this study.

The Flemish civil exemplifies the globally-occurring pendulum swing from a largely centralized organization of overhead to a decentralization movement with the advent of NPM, to top-down pressures to reduce and re-centralize overhead (OECD, 2015). In the Fall of 2009,

the Flemish government formulated a target to reduce the number of administrative overhead (related to the total number of staff) to 12% by 2014.¹ This target was lowered to 10% in 2011, and further to 6% in 2015. Furthermore, central government organizations were increasingly incentivized to find more efficient means to organize overhead activities. Importantly though, all organizations were free to decide *how* they reduced their administrative overhead processes. The Flemish context, thus, makes an interesting case to analyze how different types of organizations reacted to incentives to reduce and externalize overhead.

Data sources

Our analyses made use of data from three different sources. The first originates from the Comparative Public Organization Data Base for Research and Analysis (COBRA) network, which developed a common questionnaire in order to survey (semi-)autonomous public organizations.² In 2013, the senior management of these organizations was asked to fill in a web-based questionnaire containing several types of questions on perceptions of autonomy and control, innovative activity, management and organizational characteristics, and so forth. This study used the Flemish data, for which the response amounted to 70%. After removing missing data on the outcome, explanatory and/or control variables, we arrived at a sample of 44 Flemish central government organizations. These organizations proved to be representative for the total population, with a broad distribution across type of public organization, primary tasks, ministries and policy fields.³ Second, data on the size and organization of overhead in 2013 was collected by the Flemish Public Governance Department. An earlier data collection round in

¹ In 2007 the overall government-wide share of overhead employees was 15.20%. This number does not include the overhead staff that was operating in the management support units (see footnote 5).

² For a more detailed description of the COBRA survey: see <http://soc.kuleuven.be/io/cost/index.htm>

³ The representativeness of the data was tested using Chi-square goodness of fit tests. The number of agencies per type in the sample was compared with the number of agencies per type in the population.

2007 was validated by the Flemish Audit Office. The likelihood of subsequent audits was a real threat for organizations during the period of data collection, given the increased governmental attention to overhead reductions.⁴

Organizations were thus incentivized and educated to report accurate data. Third, data on the spatial dispersion of each public organization was collected by scanning organizations' websites, annual reports, or other documents for information about the presence of provincial branches.

Dependent variables

Researchers have used various indicators of overhead. The main distinction exists between measurements of overhead as a cost, typically the expenditures on overhead as a percentage of total net service expenditure (Andrews and Boyne, 2011, 2009, 2014; Ting et al., 2014), and measurements of overhead as a function, typically the number of full time equivalents (FTEs) working in overhead functions as a percentage of the total workforce (Boyne and Meier, 2013; Huijben et al., 2014; Rutherford, 2015).

Both measurement approaches tend to mechanically deduce organizational overhead levels from organizational cost or employee figures, which poses some issues. Relying on financial cost data runs the risk of confounding differences in overhead with differences in accounting practices or how costs are classified (as direct or indirect) within each organization. Comparable issues arise when relying on employee figures or organization charts. Similar organizational

⁴ Risks of biases in the measurement of the dependent variables due to their self-reported nature are further reduced, since the overhead data of individual agencies was never used to hold individual agencies to account. The decision-making process for overhead reductions in individual agencies was largely bottom-up, handled in working groups in which representatives of each policy domain were present.

units might greatly differ in their role within each organization. Consider the example of an information technologies (IT) helpdesk, which can be both part of primary production processes (for instance, in tax-raising agencies as part of customer service) and overhead support (for instance, to resolve internal software issues of frontline employees). These differences in accounting practices or in the role of organizational units might be particularly problematic when comparing the overhead of organizations across sectors.

The method of data collection applied here takes a more interpretative and less mechanic approach (based on Huijben et al. 2014). We focus on the HRM and the FIN overhead process. Both consist of several sub-tasks, amongst which are recruitment and selection, training and development, salary administration, HRM consultancy [HRM]; or billing administration, accounting, financial internal control, analysis and reporting [FIN]. Each organization was given a detailed template and instructions on how to classify their HRM and FIN overhead expenditures, and was asked to distinguish between in-house organized and outsourced expenditures.⁵

Employees and expenses were only classified as HRM/FIN if they supported the primary production process in the organization. This classification required tacit knowledge of the organization and of the function different units and employees performed within. Employees were considered overhead when at least 20% of their time was spent on overhead tasks. The measurement allowed employees to be partly overhead and partly primary production process. This approach resonated well with actual organizational practices, especially in smaller

⁵ Part of the overhead of certain organizations is organized in ‘management support units’ external to the organization and within government for instance, a centralized payroll system). Data was available for each management support unit about the FTEs they employed and the organizations they delivered services to. This data was used to create an estimate for the number of “centralized” FTEs working in management support units for each organization by dividing the FTEs working these units by the size of the organization.

organizations, and thus comes closer as a proxy to how employees spend their time compared to more mechanical measurement approaches. For instance, in one agency with 30 FTE, one employee was partly HRM (0,2 FTE), partly FIN (0,1 FTE) and partly primary process (0,7 FTE). One-fifth of the salary costs of this employee were allocated to HRM and one-tenth to FIN.

This study uses an FTE measure of overhead, which carries the advantage that FTEs can be measured relatively unambiguously in comparison to costs. Expenses that are typically expressed in monetary costs, such as outsourcing activities, material costs or facility costs, are converted to an FTE measure in order to map each organization's size and organization of overhead. The first dependent variable, the *size of HRM/FIN*, was measured as the number of HRM/FIN FTEs divided by the total number of FTEs within each organization. The number of HRM/FIN FTEs is the sum of in-house, outsourced and centralized overhead HRM/FIN expenditures. Since this variable is highly skewed, we used the log version. The second dependent variable, the *extent of in-house organization of HRM/FIN*, was measured as the share of in-house HRM/FIN FTEs divided by the total number of HRM/FIN FTEs (in-house, outsourced and centralized). Since the variable has a strong non-normal distribution, even after applying several transformations (e.g. cubic, log, square, square root), the variable was converted to a dummy. This dummy was set to 1 if the organization has a higher than average extent of in-house organization and set to 0 otherwise.

Independent variables

In order to operationalize and measure organizational autonomy, we rely on a series of studies in the agencification literature that argue for a distinction between *formal autonomy* – or: the autonomy that is prescribed in the statutes of agencies – and *de facto autonomy* – or: the

autonomy as perceived by organizations (Maggetti, 2007; Verhoest et al., 2012). First, formal autonomy is measured by the legal-structural type of agency and the formal-legal distance from government. A dummy (formal autonomy) is coded '1' if the agency is a public or private law based corporation and is set to '0' otherwise. If the dummy equals one, this means that the agency is further away from the government. Second, two indexes of de facto autonomy are used to measure the perceptions of senior management on different items related to their de facto personnel management autonomy (cronbach's alpha: 0.7) and their de facto financial management autonomy (cronbach's alpha: 0.77). See appendix Table 5 for more detailed information on the construction of the indexes.

The primary task environment is taken into account by the inclusion of a dummy (*service delivery*). The dummy equals 1 if the organization's primary task includes general public services or business and industrial services. It equals 0 for primary tasks related to regulation, exercising public authority and policy formulation.

Concerning the control variables: (a) *organizational size* is measured in number of employees (FTE) and is included as a continuous variable. Since the variable is highly skewed, we used the logarithm of organizational size; (b) Hall (1982) discusses different types of structural complexity: horizontal differentiation, vertical differentiation, and spatial dispersion. We focus on the latter type of structural complexity, *spatial dispersion*, which is related to the physical geography of organizational facilities. Spatial dispersion is expected to have the most extreme effect on the size and organization of overhead, since staff in spatially dispersed organizations are not only separated by divisions, but also geographically. Spatial dispersion is a dummy that refers to whether an organization has provincial branches. If an organization has at least one provincial branch in addition to its headquarters, the dummy is set to 1. Otherwise it is set to 0. *Budgetary stress* is a dummy that refers to the measures organizations have taken in the last 5

years in response to the economic and financial crisis. The precise items can be found in the appendix (Table 5). Organizations could indicate on a scale from 1 (“not at all”) to 5 (“to a large extent”) the extent to which specific measures were applied as a response to the austerity measures they faced. The responses were aggregated, after which a mean was calculated over organizations. For organizations for which the sum was higher than the mean, the dummy was set to 1. Otherwise it was set to 0.

Table 2 shows the summary statistics and correlations for the main variables. The strongest correlation exists between formal autonomy and de facto financial management autonomy (0.616). Given this high correlation, we also tested for multicollinearity using the variance inflation factor (VIF). The mean VIF equals 1.55 whereby, as expected, the highest VIFs exist for formal autonomy (2.10) and de facto financial management autonomy (1.90). These values indicate that no collinearity exists between the variables.

[Please include Table 2 here]

ANALYSES AND RESULTS

Standard micro econometric techniques were employed for the multivariate analysis. Ordinary least squares (OLS) were used to examine the size of HRM (Column 1) and the size of FIN (Column 3). Since the distribution of the extent of in-house organization of HRM (Column 2) and the extent of in-house organization of FIN (Column 4) was strongly non-normal, dummies were created, which were estimated by a logit regression. Odds ratios were calculated, which can be interpreted as follows: for a unit increase in x_k , the odds of a lower outcome compared with a higher outcome are changed by the factor $\exp(-\beta_k)$, holding all other variables constant. For instance, an odds ratio of 2 for variable agencies with services as primary task means that the odds of having a higher than average extent of in-house organization are two times higher

for agencies having services as primary task compared to agencies with other primary tasks. Odds lower than 1 consequently has the same meaning as a negative sign in traditional regression analysis and thus refer to a negative relationship. The results of the analyses are provided in Table 3.

[Please include Table 3 here]

Public organizations with a higher formal autonomy have a bigger HRM function. Partially supporting H2, this indicates that structural HRM requirements of more autonomous organizations outweigh the behavioral benefits that were expected with NPM. An alternative explanation is that the efficiency gains that were sought through autonomization reforms are predominantly visible in the primary production process. Partially supporting H3, organizations with a higher formal autonomy are less likely to organize HRM within their own organization and more likely to collaborate with external parties in the organization of overhead processes. Formal autonomy, however, does not affect the size or the organization of FIN. We find that both de facto personnel management autonomy and de facto financial management autonomy positively affect the extent of in-house organized FIN processes (but not the overall size of FIN).

Not supporting H4 and H5, the effect of task is insignificant in all models. This suggests that the *process* of recruitment is likely to be the same in service delivery, regulatory or (re)distributive organizations. An alternative explanation is that the rational perspective on organizational design based on the nature of transactions does not fully apply in the public sector, where a variety of institutional factors might intervene with a rational calculus. Take for instance the recruitment process, where a variety of regulatory pressures constrain the organizational choices of managers (Battaglio & Ledvinka, 2009).

Supporting the economies of scale perspective on organizational size, bigger organizations invest relatively less resources in HRM and FIN compared to their smaller counterparts. Organizational size has a significant and positive effect on the extent of in-house organization of FIN, though not on the in-house organization of HRM.⁶ Our findings further demonstrate spatially dispersed organizations to have more HRM overhead. Organizations that faced more budgetary stress have a smaller HRM function. No effect is found on the size of FIN, nor did budgetary stress impact the extent of in-house organization of HRM and FIN.

DISCUSSION

In this section, we discuss some implications of our findings. Particular attention will be dedicated to a discussion of varying effects of determinants on the size and organization according to whether HRM or FIN is considered. A discussion of what makes HRM different from FIN in regard to central bureaucracy is important to get a context- and (overhead) process-sensitive understanding of overhead management.

Autonomy influences the size and organization of overhead. Yet, supporting earlier work on agencies (Maggetti, 2007), the effects of formal and de facto autonomy were distinct for HRM and FIN. Contextual and HRM/FIN characteristics might account for this difference.

In 2002, an NPM-inspired reform in the Flemish civil service decentralized several HRM competences to the line. To ensure consistency in HRM policies, a framework law was formulated called the Flemish Personnel Statute (FPS). The FPS prescribes the rights and duties

⁶ We also tested the effect a squared term of organizational size, which proved insignificant in all models and offered no added value to the models (hence these models are not shown, though they are available upon request from the authors).

of civil servants in terms of remuneration, recruitment, evaluation, types of leave, disciplinary measures, and so forth. The FPS further dictates certain HRM requirements that are linked to formal autonomy. For instance, the recruitment process of non-temporary civil servants is far more regulated for organizations with a low formal autonomy. Unlike the HRM process, the FIN process never saw the implementation of a framework law to ensure some consistency among public organizations of the same formal autonomy (Verhoest et al., 2012). This made it difficult to explain FIN organizational practices using the formal autonomy of organizations and increased the importance of organization-specific arrangements. Differences in the volume of FIN activities were better explained by differences in the extent to which organizations perceived their day-to-day de facto autonomy and resulting control activities differently.

Interestingly, HRM was externalized to greater extents as organizations had more formal autonomy, whereas FIN was externalized to lesser extents as organizations had more de facto autonomy. HRM is composed of a wide variety of underlying activities, some of which are highly suited to be externalized. For instance, payroll or training services are characterized by measurable outputs and process, hardly require tacit organizational knowledge for their execution, are not strategically important and are offered by a lot of providers in a competitive market. Though formally autonomous required more HRM, our findings also suggest that they recognized the potential of externalizing some HRM activities. In contrast, the majority of FIN activities are more control-oriented, typically placed at higher levels in the organization to give strategic advice to top management (Mintzberg, 1979). As organization had more discretion to promote, pay and evaluate their own staff, shift budgets or set tariffs, they required more specific accounting needs that are most reliably organized in-house.

We also found different effects of spatial dispersion dependent on whether HRM or FIN was considered. Spatially dispersed organizations required more HRM. Previous studies observed a

decentralization of HRM activities (Shim, 2001). According to Pollitt and Bouckaert (2011), these reforms increased the flexibility, responsibilities and invested resources for HRM at the line, but also expanded the central instruments of control through standardization of procedures and more sophisticated performance-based management systems. Our findings suggest this trend had a stronger effect on the size of HRM in spatially dispersed organizations. Spatial dispersion can be seen as a more extreme form of (geographical) decentralization. No effect of spatial dispersion was found for the FIN process. As outlined above, the majority of FIN activities are more control-oriented, strategically important and placed at higher levels in the organization. In contrast to HRM where several activities involve more standardizable work that is organized at lower levels in the organization (Mintzberg, 1979), our findings suggest that FIN resources were less likely to be duplicated in organizations with provincial branches.

Lastly, budgetary stress was found to impact the size of HRM but not of FIN. Potentially, the downsizing measures that were taken by more pressured organizations in response to the crisis also affected the HRM function. Van Ommeren and Brewster (2000) argued that HRM staff feel relatively more pressure to justify themselves that they are not overstaffed compared to other overhead processes, since they are the ones seen by other employees as the group that has been responsible for ensuring that the organization is "lean". The finding that FIN processes were not significantly affected by austerity measures confirms our other results which could be explained by the increasing importance of the FIN function to control scarce resources in the context of the financial crisis.

CONCLUSION

In recent years, studies have examined what explains the cost of governments against the backdrop of NPM's emphasis on cost-cutting and efficiency and the pressure put by the

financial crisis on governments to reduce their overhead costs. In their longitudinal study on the administration costs of civil departments in the United Kingdom, Hood and Dixon (2015) arrive at the notable conclusion that these costs had risen substantially since the advent of NPM. Yet they also find wide variations in administrative spending between departments, which leaves an important question this study addressed: what explains differences in overhead costs at the meso-level of public organizations?

The study provides greater insights into the complexities of managing overhead in the public sector. It contributes to the overhead literature in several ways. First, research to date overly restricted its focus to organizations that belong to the same (sub-)sector. This study examined differences in the size and organization of overhead between a variety of organizations from different sectors that belong to the same government level. Second, the literature insufficiently recognized that overhead is not a homogenous bundle of activities. This study demonstrated and discussed different effects of independents on HRM and FIN. Third, little was known about why entities organize overhead differently to achieve the efficiencies many governments require in the wake of the global financial crisis. This study analyzed whether determinants that were deemed important in previous research on the size overhead also had explanatory value concerning how overhead is organized. Fourth, by bringing in autonomy and primary task, this study brought theoretical innovation by investigating the effect of these factors that have been extensively researched in the literature on agencies.

These findings are important at a time when many governments are pursuing reforms to reduce overhead expenditures in response to austerity demands. This often through top-down large scale overhead reductions and re-centralizations with little appreciation for differences between organizations in their overhead requirements and in the organizational model that fits these structural requirements and behavioral predispositions. This study applauds differentiated

approaches to overhead management according to task (such as in the Netherlands, see OECD, 2010), though are findings suggest that other factors, in particular autonomy, might be more important determinants of organizational differences. Furthermore, organizational differences are often contingent on specific overhead processes as the distinction in this study between HRM and FIN demonstrates. The study should also appeal to a broader body of research on decision-making processes in public organizations. The analysis of what drives the decision to organize services differently forms an important area of ongoing theoretical and empirical study that can cast light on the forces that shape decision-making in public organizations (Baekkeskov, 2011).

We call upon future research to advance on this study and address some of the present limitations. First, while the Flemish case shares a history of successive and contradictory administrative reform doctrines related to NPM and post-NPM with many other regions and countries, there are some idiosyncrasies (such as the absence of a financial management regulatory framework) that might underlie certain effects. Also, due to our focus on Flemish central government bureaucracies, influences related to differing geographical or market conditions could not be tested. Second, the small (though representative) sample size of 44 organizations prohibited us from testing the likelihood of certain interaction effects, from adding more detailed variables that tap into differences in task, or from introducing a wider set of variables that tap into different sources of environmental turbulence or structural complexity. Third, our findings are based on cross-sectional data. While ideal for comparing differences between organizations at a fixed point in time, our analysis could not shed light on time effects. For instance, Hood and Dixon (2015) document differences in the evolution of running costs (increasing over time) and payroll costs (decreasing over time), which suggests an increase in the outsourcing component of overhead costs. Future studies could shed further light on how

contextual features and prevailing models of organizing overhead affect the size of organizational overhead and, ultimately, the cost of government.

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APPENDIX

[Please insert Table 4 here]

[Please insert Table 5 here]

TABLES TO BE INCLUDED

Table 1: Theoretical expectations control variables

	Effect on size of overhead	Effect on in-house organization of overhead
Organizational size	<p>(+) As organizations grow in size, the number of relationships to manage rises exponentially. Therefore, more administrative overhead staff is required to support the management (Huijben et al., 2014; Terrien and Mills, 1955).</p> <p>(-) Bigger organizations can spread fixed administrative costs across a wider range and higher quantity of overhead activities (Andrews and Boyne, 2009; Holdaway and Blowers, 1971; Tosi and Patt, 1967).</p>	<p>(+) Organizing overhead in-house requires a substantial investment. This investment is more worthwhile when it can be spread across a wider range and higher quantity of overhead activities (Williamson, 1979). Therefore, bigger organizations with more employees to support in their primary production process will be more likely to organize administrative overhead in-house.</p>
Structural complexity (spatial dispersion)	<p>(+) Non-dispersed organizations can more easily achieve economies of scope by sharing some of the inputs in the production of overhead activities (Andrews and Boyne, 2009). In contrast, dispersed organizations will have a higher overhead due to a certain duplication of overhead activities. Also, managing spatially dispersed organization from a central level poses coordination problems which leads to a higher overhead (Rushing, 1967).</p>	<p>(+) Overhead staff in spatially dispersed organizations are seen as useful instruments for central management in order to curb the potential opportunism of line managers, through overhead activities such as information gathering and the standardizing of internal procedures. In spatially dispersed organizations, central management might look at overhead as a strategic instrument to keep lower level units in check, which they would like to retain in-house.</p>
Environmental turbulence (budgetary stress)	<p>(+) Structural contingency theory suggests that turbulence in the environment of organizations will lead to more resources invested in overhead staff in order to adapt to environmental change (Donaldson, 1991; Freeman, 1973).</p>	<p>(-) Organizations that face more budgetary stress are more likely to engage in externalized organizational models that aim to achieve efficiencies either through market solutions (outsourcing) or scale (centralization) (Wildavsky, 1987).</p>

Note: (+) increasing effect; (-) decreasing effect

Table 2: Summary statistics and correlation matrix

Variables	Description	Mean	Sd.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Size HRM (log)	(1) Continuous	0,023	0,026	1										
Extent in-house HRM	(2) Dummy	0,591	0,497	0.0593	1									
Size FIN (log)	(3) Continuous	0,018	0,010	0.168	-0.0487	1								
Extent in-house FIN	(4) Dummy	0,591	0,497	0.0621	0.0598	0.0416	1							
Formal autonomy	(5) Dummy	0,386	0,493	0.289*	-0.0992	-0.0615	0.375**	1						
De facto personnel management autonomy	(6) Continuous	3,572	0,580	-0.238	0.00344	0.106	0.273*	0.185	1					
De facto financial management autonomy	(7) Continuous	1,699	0,384	0.168	0.0236	-0.0224	0.379**	0.616***	0.0672	1				
Size	(8) Continuous	417,848	631,198	-0.00462	0.188	-0.360**	0.338**	0.254*	0.162	0.222	1			
Spatial dispersion	(9) Dummy	0,545	0,504	0.192	0.354**	-0.346**	0.262*	0.162	-0.164	0.00863	0.339**	1		
Budgetary stress	(10) Dummy	0,500	0,506	-0.108	0.0925	-0.211	-0.0315	0.0467	-0.113	0.0754	0.122	0.274*	1	
Task	(11) Dummy	0,500	0,506	0.155	0.0925	-0.0967	0.370**	0.140	-0.0333	0.193	0.305**	0.274*	0	1

* p<0.10, ** p<0.05, *** p<0.01

Table 3: Regression tables

Variables	(1) Size HR (Log)	(2) Make HR	(3) Size Fin (Log)	(4) Make Fin
Formal autonomy	0.915*** (0.282)	0.226* (0.202)	0.0434 (0.216)	1.951 (1.949)
De facto personnel management autonomy	-0.0138 (0.194)	1.168 (0.735)	0.150 (0.148)	3.883 (3.612)
De facto financial management autonomy	0.345 (0.355)	3.222 (3.573)	-0.0382 (0.272)	16.11** (22.52)
Task (Service delivery)	0.138 (0.224)	0.983 (0.709)	0.0285 (0.171)	4.389 (4.107)
Organizational size (Log)	-0.290** (0.113)	1.255 (0.502)	-0.252*** (0.0868)	2.796* (1.577)
Spatial dispersion	0.762*** (0.258)	4.278 (4.078)	-0.0618 (0.197)	2.993 (4.117)
Budgetary stress	-0.384* (0.218)	0.850 (0.672)	-0.177 (0.167)	0.499 (0.459)
Constant	-3.764*** (0.984)	0.0319 (0.114)	-3.150*** (0.753)	2.14e-07*** (1.04e-06)
Observations	44	44	44	44
Log-Likelihood	-41.271	-26.061	-29.510	-17.23
R-squared	0.533		0.315	
McFadden R-squared		0.124		0.421

Robust standard errors in
parentheses *** p<0.01,
** p<0.05, * p<0.1

Table 4: Organizations included in sample

Organization	Policy field	Size	Formal autonomy
Organization 1	Economy, science and innovation	273	No
Organization 2	Culture, youth, sports and media	689	Yes
Organization 3	Public governance	406	No
Organization 4	Public governance	785	No
Organization 5	Education and development	78	Yes
Organization 6	Economy, science and innovation	134	Yes
Organization 7	Agriculture and fishery	323	No
Organization 8	Mobility and public works	1296	No
Organization 9	Environment, nature and energy	807	No
Organization 10	Public governance	102	No
Organization 11	Environment, nature and energy	215	No
Organization 12	Health, welfare and family	1294	No
Organization 13	Health, welfare and family	1347	Yes
Organization 14	Culture, youth, sports and media	98	No
Organization 15	Culture, youth, sports and media	171	No
Organization 16	Mobility and public works	600	Yes
Organization 17	Spatial planning and housing	318	No
Organization 18	Health, welfare and family	646	Yes
Organization 19	Environment, nature and energy	382	Yes
Organization 20	Culture, youth, sports and media	116	No
Organization 21	Service of the chancellery	44	No
Organization 22	International relations	175	Yes
Organization 23	International relations	29	No
Organization 24	Work and social economy	164	Yes
Organization 25	Health, welfare and family	320	Yes
Organization 26	Health, welfare and family	242	No
Organization 27	Environment, nature and energy	59	No
Organization 28	Work and social economy	118	No
Organization 29	Work and social economy	4897	Yes
Organization 30	Environment, nature and energy	675	Yes
Organization 31	Spatial planning and housing	270	Yes
Organization 32	Environment, nature and energy	1023	Yes
Organization 33	Environment, nature and energy	36	Yes
Organization 34	Culture, youth, sports and media	19	Yes
Organization 35	Mobility and public works	904	Yes
Organization 36	Spatial planning and housing	245	No
Organization 37	Economy, science and innovation	133	No
Organization 38	Service of the chancellery	245	No
Organization 39	Health, welfare and family	237	No
Organization 40	Culture, youth, sports and media	204	No
Organization 41	Spatial planning and housing	372	No
Organization 42	Public governance	265	No

Organization 43	Agriculture and fishery	336	No
Organization 44	Work and social economy	116	No

Table 5: Information indexes

De facto personnel management	Can your organization promote certain employees without ministerial or departmental influence?
	Can your organization evaluate certain employees without ministerial or departmental influence?
	Can your organization appoint certain employees without ministerial or departmental influence?
	Can your organization sack certain employees without ministerial or departmental influence?
De facto financial management autonomy**	Can your organization get loans for investments?
	Can your organization set tariffs for services or products?
	Can your organization participate in private law based companies?
	Can your organization engage in contracts with private law based companies?
	Can your organization shift between the budgets for personnel costs and running costs?
	Can your organization shift between the budgets for personnel or running costs on the one hand and investments on the other hand?
	Can your organization shift between budgets across years?
Budgetary stress***	<p>To what extent did your organization make use of the following measures in the last 5 years as a response to the austerity measures it is faced with?:</p> <ul style="list-style-type: none"> Laying off staff Recruitment stop Reduction of salaries Freezing salaries Budget reductions in existing programs Delaying new projects Reducing the number or size of front offices Charging higher rates and fees for service users Selling assets of the organization Automating tasks

*1 = 'No'; 2 = 'Yes, for some employees'; 3 = 'Yes, for most employees'; 4 = 'Yes, for all employees excluding senior management'

Cronbach's alpha on combined items = 0.7

** 1 = 'No'; 2 = 'Yes, provided that ministerial or top-down approval is given; 3 = 'Yes, without ministerial or other forms of top-down approval'

Cronbach's alpha on combined items = 0.77

*** 1 = 'Not at all'; 2 = 'To a limited extent'; 3 = 'To some extent'; 4 = 'To a large extent'; 5 = 'To a very large extent'