Solidarity between generations in extended families : old-age income as a way out of child poverty?

Solidarity between generations in extended families. Old-age income as a way out of child poverty?

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Abstract

We analyse intergenerational solidarity within multigenerational households (MGHs), and assess how the formation of these households is related to poverty across European countries. Using data from EU-SILC, we examine three specific empirical questions with regard to this complex form of intergenerational solidarity, notably (1) we identify to what extent co-residence within MGHs is financially beneficial to the young and/or the old generation; (2) we analyse how the income brought into these households by the old generation impacts on child poverty and (3) we test how sensitive this impact is to hypotheses about the way resources are shared in the household. We define MGHs as those households where three generations cohabit. The results indicate that the formation of MGH operates mainly as solidarity from older to younger generations. Although not designed for this purpose, pensions alleviate child poverty in these countries where MGH are most prevalent.

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Solidarity between generations in multigenerational households: Old-age income as a way out of child poverty?

1 Introduction

In this article we look at how the sharing of income in multigenerational households (MGHs) affects child poverty. We define MGHs as households where three generations cohabit. Pensions are a key income component in these households. Exploiting unique features of the EU-SILC database, we examine three specific empirical questions with regard to this complex form of intergenerational solidarity, for 32 European countries: (1) we measure to what extent co-residence within MGHs is financially beneficial for the young and/or the old generation; (2) we analyse the impact on child poverty of the income contributed to these households by the old generation; (3) we test how sensitive this impact is to hypotheses about the way resources are shared in the household.

In Southern and especially Eastern Europe, MGHs are a relatively common household form, but they are far less prevalent in Western and Northern Europe. Different factors can explain the formation of such families, ranging from individual preferences to the external socio-economic or cultural context. For the post-Communist countries, the combination of the difficult transition to market economies and the hardship this entailed in many countries, together with the still relatively low level of development of welfare states in some of these countries, provide a plausible explanation for the high prevalence of MGHs (Romania has been studied as an exemplary case with regard to the impact of social and economic hardship on the formation of MGHs; see Preoteasa et al., 2018). For Southern European countries, the explanation may be found both in the legacy of what Saraceno and Keck (2010) have called 'familialism by default' (i.e. neither publicly provided alternatives to, nor financial support for family care) and, more recently, the impact of the financial crisis, which may have halted a long-term sociological downward trend in the prevalence of MGHs in Western and Southern European welfare states (a trend documented by Glaser et al, 2018, for England and Wales, France, Greece, Portugal and Austria). In contrast, in Scandinavian countries, highly developed and long-standing 'de-familialisation' (Saraceno and Keck, 2010) by these welfare states are the obvious factors at play.

In previous work, researchers have generally focused on the impact of MGHs on labour supply and time spent on informal and formal care (e.g. Pezzin and Schone (1999); Bertrand et al. (2003); Dimova and Wolff (2011)). However, one important implication of the formation of MGHs is generally left out: the elderly typically bring pensions, and potentially other income, into the household, which may be of

substantial size. As such, the formation of MGHs can be a coping strategy with respect to financial distress, especially for the younger generations. Albertini and Kohli (2012) look at financial transfers from parents to their adult children for three clusters of welfare states (Nordic, continental, Southern), but they do not consider the impact on the younger generation.

In a first analysis, we assess to what extent financial gains of the formation of the MGHs are pro-child (when the elderly bring in proportionally more income) or pro-elderly (when child and parents bring in proportionally more income) or both (which can occur through economies of scale). Using data from the EU-SILC 2013, we analyse the prevalence of each of the three scenarios (pro-child, pro-elderly and mutually beneficial) in MGHs across European countries. In a second analysis, we examine how the prevalence of MGHs relates to poverty risks with a logistic regression. In a third analysis, we analyse the contribution of income from the elderly to the reduction of child poverty under different scenarios of cost-sharing and resource-sharing. A standard practice in the study of income distribution is to assume that resources are fully shared within the household. The literature, however, is becoming increasingly critical of this assumption. Such criticism may hold *a fortiori* for MGHs, and, therefore, needs to be tested. To our knowledge, the impact of old-age income and the bearing of resource-sharing and cost-sharing have not been analysed for MGHs, and studies on these households for Europe or in an international comparative perspective are, in general, rare. The EU-SILC dataset, notably the information provided on intra-household sharing, allows us to fill this gap.

The paper is organised as follows. In Section 2 we position the paper in the literature. In Section 3 we discuss the data and methodology underpinning our empirical analysis of the three questions mentioned earlier. In Section 4 we present the empirical results. The final section presents our conclusions.

2 Background

Our study contributes to the literature on (1) drivers of MGH formation, (2) the impact of social transfers on child poverty, and (3) poverty measurement by putting the classical resource-sharing assumption to the test.

Evidence on co-residence of young and old generations mostly refers to the United States, which has seen significant increases in the prevalence of MGHs since the 1970s. Studies have attributed this increase to rises in divorce rates, single-parent families, female labour force participation and incarceration rates over this same period (see e.g. Baker et al., 2008; Turney, 2014). Additionally, they find that among MGHs in the United States poverty and unemployment rates are higher, suggesting that economic hardship is one of

the main motivations for their formation. Cultural factors, such as religion, migrant status and ethnicity, are cited as another explanatory factor (Luo et al., 2012; Pilkauskas, 2012). Baker and Muchler (2010) investigate insecurity and material hardship among children living in grandparent-headed households, and find an increased risk of health insecurity for children living in three-generation households, but no difference with respect to food and housing insecurity in comparison with two-parent households. Research in a European setting is scarce, especially from an international comparative perspective. An exception is Glaser et al. (2018), who find that the share of people living in MGHs has been decreasing in Austria, France, Greece and Portugal between around 1981 and the early 2000s, while it has been rising in Romania and the United States (the case of Romania is discussed in depth in Preoteasa et al., 2018). They confirm that, as in the United States, MGHs in these European countries are characterised by socio-economic disadvantage.

With respect to the role of social transfers on child poverty and well-being, research on South-Africa indicates that the contribution of pensions to the household budget has a positive impact not only on food, health care and clothes consumption shares of the children (Hamoudi and Thomas, 2005), but also on their cognitive and physical development (Duflo, 2000) and school enrolment (Case and Menendez, 2007). It appears that these pensions shift bargaining power from the male household head to the grandparent (generally a grandmother), which benefits children even when controlled for income changes. In any case, the empirical evidence indicates that at least a significant share of the extra pension income brought into the household is used to the benefit of children. However, one cannot extrapolate findings from studies about low- and middle-income countries (such as South-Africa) to high-income countries. For high-income countries, there is a vast literature on the impact of the tax-transfer system on child poverty in general (see e.g. Bárcena-Martín et al. (2018); Salanauskaite and Verbist (2013); and references therein), though little is known for children living in MGHs specifically. Diris et al. (2017) estimate the direct impact of social spending on child poverty in the EU, and they uncover an ambiguous role for increases in pension spending size: more pension spending worsens the relative income position of children and thereby increases child poverty, but also alleviates child poverty in MGHs. This analysis is performed at an aggregate level, i.e. it aims to explain the impact of aggregate pension spending on aggregate child poverty rates at the country level. However, in order to do justice to cross-country differences an analysis at the micro-level is needed, which is currently lacking.

A micro-level analysis inevitably triggers questions about one of the standard assumptions in poverty analysis, which generally applies an equivalence scale to household income to derive a needs-adjusted metric of income (which is coined ‘equivalised income’). Assigning to each individual in the household the same equivalised income means that one assumes equal sharing of resources in the household. If this

assumption is violated, misleading conclusions might be drawn (Atkinson, 1975; Decancq et al., 2014). A growing body of literature indicates that this equal sharing assumption lacks both a theoretical foundation and empirical support (see e.g. Behrman, 2003; Orsini & Spadaro 2005; Burton et al. 2007). Several studies have rejected this 'classical' model of resource-sharing, as different individuals have different levels of bargaining power in the family, which often has a strong gender dimension (see e.g. Thomas, 1990; Schultz, 1990; Fortin and Lacroix, 1997; Bennett, 2013). Typically, such analyses are exclusively focused on working-age adults with or without children, but it is likely that differences in bargaining power also apply to MGHs. The number of studies that look at the impact of within-household resource-sharing on child poverty is very limited, and studies conducted on developed countries (see e.g. Cantillon and Nolan, 2001 on Ireland; Burton et al., 2007 on Canada) do not consider MGHs.

3 Data and methodology

We will discuss the three specific research questions set out in the previous sections on the backdrop of a descriptive analysis of MGHs and poverty in Europe. Therefore, this section consists of four subsections: in Section 3.1, we briefly discuss the EU-SILC data and what they indicate about some general features of MGHs; in Section 3.2, we present the concepts applied in our analysis of the direction of solidarity; in Section 3.3, we present the multivariate model used to assess the impact of MGHs on child poverty; and in Section 3.4, we explain how the impact of the resource-sharing assumption can be tested.

3.1 Data and definitions

The empirical analysis is performed on the data of EU Statistics on Income and Living Conditions (EU-SILC) 2013. The 2013 database contains representative samples of private households of 32 countries (the EU member states at the time, plus Croatia, Iceland, Norway, Serb Republic and Switzerland). An MGH is defined here as a household with at least one child, one elderly individual and one of working age. A child is defined as any person in the survey younger than 18, an elderly individual as any person older than 64 and a working-age individual as any person aged between 18 and 64.

The SILC data reveal several specific characteristics of MGHs (See Appendix Table A.1; these variables are also used in the logistic regression as controls, see Section 3.3). First of all, elderly individuals in MGHs are much more likely to be grandmothers than grandfathers, especially in those countries where MGHs are more prevalent. In the Northern countries, grandfathers are more frequent in MGHs. The large majority of elderly individuals in MGHs do not report to suffer from poor health. This suggests that the need to care

for a grandparent with health concerns is not a major factor behind MGH formation. Another key characteristic is the higher likelihood of having only one working-age adult in MGHs. As such, the grandparent can be seen as a substitute for a second parent figure in many MGHs. MGHs are also more likely to have a non-EU migrant background in Nordic, Continental, Anglo-Saxon and Eastern European countries, but not in Southern Europe. MGHs also have lower levels of human capital and a lower household work intensity[1]. Remarkably, the difference in work intensity is absent in Eastern European countries, where MGHs are most present. This might reflect that the impact of the MGH formation on the propensity to work can operate in opposite directions. The elderly could require more care and take time away from labour market activity, but they can also serve as facilitators to labour market participation by acting as caregivers to the grandchild. These SILC-based observations largely confirm observations by Glaser et al (2018): 'grandparent households' are associated with socio-economic disadvantage (whether measured by marital status, work status or education level) in all the countries they study; grandmothers are more present than grandfathers; and they are more often formed in migrant households.

We measure child and elderly poverty with a headcount rate, which takes the share of individuals within the relevant age group with an equivalised household income below the poverty line. Following common practice in the European Union, the poverty line is set at 60 percent of median equivalised household income; incomes are equivalised with the modified OECD scale to take household composition into account. This equivalence scale attributes a weight of 1 to the first adult in the household, a weight of 0.5 to other individuals aged 14 or more and a weight of 0.3 to children under 14.

To facilitate the presentation of our results, we cluster the countries in our sample in five groups on the basis of geography and, to some extent, their history (the former communist countries that are now (candidate) EU members constitute one cluster).

1) Nordic: Denmark, Finland, Iceland, Norway, Sweden;
2) Continental: Austria, Belgium, France, Germany, Luxembourg, the Netherlands, Switzerland;
3) Anglo-Saxon: Ireland, United Kingdom;
4) Southern: Cyprus, Greece, Italy, Malta, Portugal, Spain;
5) Eastern: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia, Serb Republic.

The countries in some of these geographical-historical clusters share certain features (e.g. mature and rich welfare states and a very low prevalence of MGHs in the Nordic cluster), but we do not pretend that these

[1] Following EUROSTAT, the work intensity of a household is defined here as the ratio of the total number of months that all working-age household members have worked during the income reference year and the total number of months the same household members could theoretically have worked in the same period.

clusters are delineated by clear-cut differences with regard to the dynamics of household formation and intergenerational solidarity.

3.2 Measuring the direction of financial solidarity

From a financial perspective, the formation of an MGH can be beneficial for the children involved, for the elderly involved, or for both children and the elderly (throughout this paper, we use 'beneficial' to mean 'financially beneficial'). We use 'pro-child' and 'pro-elderly', respectively, to describe MGHs whose formation is solely beneficial for the children or for the elderly, and 'mutual' to mean MGHs whose formation is beneficial for both the children and the elderly. We present a simple, formal framework that allows us to classify MGHs into these three distinct categories.

From the perspective of the children, the formation of the MGH is beneficial if their equivalised household income in the MGH is higher than their equivalised income in a counterfactual household without the elderly, or, formally, if

$$\frac{P+NP}{ESMG} > \frac{NP}{ESCF_C} \tag{1}$$

with:

P = sum of non-equivalised incomes of household member(s) older than 64 (mostly pension incomes, hence 'P', but note that all incomes of elderly household members are included in P)

NP = sum of non-equivalised incomes of household members younger than 65;

$ESMG$ = parameter applied to equivalise income of MGH (i.e. the equivalence scale)

$ESCF_C$= parameter applied to equivalise income of counterfactual household, from which we exclude the elderly (persons 65+);

Expression (1) can also be written as:

$$\frac{P+NP}{NP} > \frac{ESMG}{ESCF_C} \tag{2}$$

or:

$$\frac{P}{NP} > \frac{ESMG-ESCF_C}{ESCF_C} \tag{3}$$

These expressions formalise a simple insight: the formation of the MGH is beneficial for the children if the ratio of the incomes of the elderly divided by the incomes of the non-elderly is *larger* than the relative increase in the equivalence scale generated by MGH formation (i.e. larger than the difference between the

equivalence scale of the MGH and the equivalence scale of the counterfactual household without the elderly, divided by the latter counterfactual equivalence scale). In other words, if the elderly add more income than spending needs, the children gain.

We can apply a similar reasoning from the perspective of the elderly: the formation of the MGH is financially beneficial for the elderly involved, if:

$$\frac{NP}{P} > \frac{ESMG - ESCF_E}{ESCF_E} \tag{4}$$

with

$ESCF_E$= parameter applied to equivalise income of counterfactual household, from which we exclude the non-elderly.

Equation (4) tells us that the formation of the MGH is beneficial for the elderly if the ratio of the incomes of the non-elderly divided by the incomes of the elderly is *larger* than the relative increase in the equivalence scale generated by MGH formation. If the income share of the non-elderly is larger than their share in the equivalence scale of the MGH, the elderly will benefit.

The formation of the MGH will benefit both the children and the elderly, if both equations (3) and (4) hold. Equations (3) and (4) can only hold simultaneously if the following condition is satisfied:

$$\frac{ESMG - ESCF_C}{ESCF_C} < \frac{ESCF_E}{ESMG - ESCF_E} \tag{5}$$

In short, we label MGHs 'pro-child' if equation (3) holds but equation (4) does not hold; MGHs as 'pro-elderly' if equation (3) does not hold but equation (4) holds; and MGHs as 'mutual' if both equations (3) and (4) hold. It is not possible that MGHs are neither 'pro-child' nor 'pro-elderly', as this would require that $ESMG \geq ESCF_C + ESCF_E$, which is in contradiction with the economies of scale incorporated in standard equivalence scales.

If the formation of an MGH is beneficial for the children, equivalised household income (in the MGH) improves relative to the poverty threshold (compared with the counterfactual, whereby the elderly would be excluded from the household). Hence, if their counterfactual income is below the poverty threshold, the formation of the MGH makes it possible to surpass the threshold, but it need not do so. If a large share of children lives in MGHs that are either 'mutual' or 'pro-child', we can therefore presume a beneficial impact of MGH formation on child poverty, but the importance of that impact is an empirical question.

3.3 Multivariate analysis

The results from the analysis on the direction of financial solidarity (see Section 4.1), show that MGHs are predominantly 'pro-child'. Hence, the poverty-alleviating effect of co-residing is potentially largest with respect to child poverty. Therefore, the subsequent empirical poverty analysis focuses on child poverty and its specific relation to elderly income in MGHs. As indicated in the previous section, we look at the contribution of *total* income of the elderly. Pensions, nevertheless, make up the large majority of elderly incomes, so these are the main drivers of the results (see Appendix Table A.2).

In order to identify how being part of an MGH affects child poverty, we present a set of logistic regressions. The dependent variable ($Poor_i$) is whether a child is poor (1) or not (0). Our independent variables of interest are whether the child lives in an MGH (MGH_i; yes/no) and whether income from an old-aged person is present (yes/no). For the latter, we make a distinction between only income from an old-aged man (YOAM), only income from an old-aged woman (YOAF) and income from both an old-aged man and an old-aged woman (YOAFM)[2]. We thus estimate the following two logistic regressions for each country:

Model 1: $$Poor_i = \alpha + \beta\, MGH_i + \gamma X_i + \epsilon_i$$

Model 2: $$Poor_i = \alpha + \beta_1 YOAF_i + \beta_2 YOAM_i + \beta_3 YOAFM_i + \gamma X_i + \epsilon_i$$

We include the following control variables (X): (1) whether there is only one working-age adult in the household (yes) or more; (2) whether the old-aged person suffers from bad health (yes if PH010 is 4 [bad] or 5 [very bad]), with a separate variable for man and woman; (3) whether the head of the household has a migrant background (yes if non-EU born); (4) whether the head of the household has attained a higher education degree; (5) age of the head of the household and (6) work intensity of the household. These models allow us to estimate the effect on child poverty of being in an MGH, compared to being in a two-generation household that has similar (observable) circumstances. Hence, we correct for the fact that MGHs tend to form in adverse socio-economic circumstances. Note that these models at the same time also control for any behavioural changes that MGH formation causes that operate through these control variables. For example, if MGH formation allows working-age adults to increase work intensity because grandparents act as caregivers to their children, this beneficial effect will not be picked up by the analysis.

[2] Given that in the large majority of MGHs the old-age person(s) has/have income (see Appendix Table A.2), the reference category is children living in two-generation households.

3.4 Simulation analysis of resource-sharing assumption

In addition, we perform a simulation analysis, i.e. we assess what child poverty would be if there were no income from the elderly in the household. A standard means of investigating how different income components help to reduce poverty is a pre-post analysis: what would poverty be before and after inclusion of the component in household income (see e.g. Levy et al., 2007; Salanauskaite and Verbist, 2013)? This static analysis does not take into account possible behavioural reactions. This limitation of the method is well-known (Bergh, 2005; Jesuit and Mahler, 2010, Marx et al., 2016). Nevertheless, a pre-post analysis is relevant for our research question as it provides an indication of how important the pension income is in lifting the household above the poverty line.

We expand upon this standard pre-post analysis by also investigating the role of the equal-sharing assumption of household income that is standardly used in distributive analyses. As discussed in Section 2, the standard full-sharing assumption is probably especially unrealistic for MGHs. We therefore perform a selection of simulations to test the sensitivity of our outcomes to changes in the resource-sharing assumption. Two extreme assumptions would be: full-sharing on one hand and no sharing on the other. Neither is very realistic, but such simulation exercises present upper and lower bounds and hence provide a valuable indication of the importance of income sharing within the household (Burton et al., 2007). Simulation studies of this kind are rare (examples are Jenkins, 1991; Sutherland, 1997; Phipps and Burton, 1995). A few studies have investigated sharing within households using survey questions that explicitly ask about the degree of income-sharing (e.g. Woolley and Marshall, 1994). Using self-reported data from EU-SILC on the degree of sharing in households[3] we can approximate the true degree of sharing in MGHs and construct a more plausible additional scenario. To the best of our knowledge, no previous study has analysed sharing in MGHs using direct survey data.

We find indeed that full sharing of incomes occurs less in three-generation than in two-generation households (See Appendix Table A.3). In those countries where full sharing is relatively limited, there is still substantial partial sharing of resources. Additionally, the data show that old-aged members of an MGH share a substantial part of their income in the common household budget (see Appendix Table A.4). In the countries with at least a moderate share of MGHs, the degree of sharing in MGHs centres around 70%. We present a scenario in which part of elderly income is shared within the household budget. This part is

[3] We use the ad hoc module of EU-SILC 2010 on 'Intra-household sharing of resources', in which respondents answer questions on sharing in their household (See Notes under Appendix Tables A.3 and A.4).

determined for each country by the weighted average of the reported degree of sharing (see Note Table A.4).

Our simulations test the impact of the two factors that are relevant for child poverty in MGHs: (1) income from the elderly increases the income that can be shared in the household; and (2) living costs increase due to the additional household members, but less than proportional because of economies of scale. We calculate several pre-post scenarios, in which we change either the income shared by the elderly or the equivalence scale. As alternatives to our baseline scenario, which is the current situation with the full sharing assumption and unchanged equivalence scale, we present the following four scenarios:

1) *'No sharing, equivalence scale unchanged': elderly incomes removed from household income; household composition not changed; equivalence scale not changed*. This scenario corresponds to the situation where the old-aged person in the household would not share its income with the other persons in the household. The cost of living of the old-aged person is still taken into account as the equivalence scale is not altered. While this is not a realistic scenario, it indicates what child poverty would be in the absence of the elderly income in the household.
2) *'No sharing, no elderly in equivalence scale': elderly incomes not included in household income; elderly excluded from household; equivalence scale changed correspondingly*. This scenario corresponds to the situation where there would be no MGH; i.e. the elderly effectively form(s) a separate household. Hence, neither elderly incomes nor living costs are shared.
3) *'No sharing, split equivalence scale':* multigenerational households are divided into two sub-households under same roof, notably one consisting of the old-aged person(s) and one consisting of the children and working-age individuals, but the equivalence scale is adapted so that the first adult in both households gets a value 0.75 (rather than 1). This corresponds to the situation where the different generations live under the same roof and thus benefit from economies of scale. We therefore divide the economies of scale over both households, but resources are not shared.
4) *'Part of elderly income shared, equivalence scale unchanged': incomes from elderly partially removed from household income; household composition not changed; equivalence scale not changed*. This scenario corresponds to the situation where the old-aged person in the household shares only part (based on the SILC-reported sharing degrees) of his/her income in the household; the cost of the old-aged person is taken into account as the equivalence scale is not altered. It provides an indication of what child poverty would be when only part of the income is shared in the household.

For scenarios 1) and 4), child poverty rates will increase by construction, compared to the baseline of full sharing. This increase will be especially strong in scenario (1). In the case of scenarios 2) and 3), child poverty can move either way (as compared to the baseline) depending on whether the effect of changing incomes or the effect of changing equivalence scales dominates.

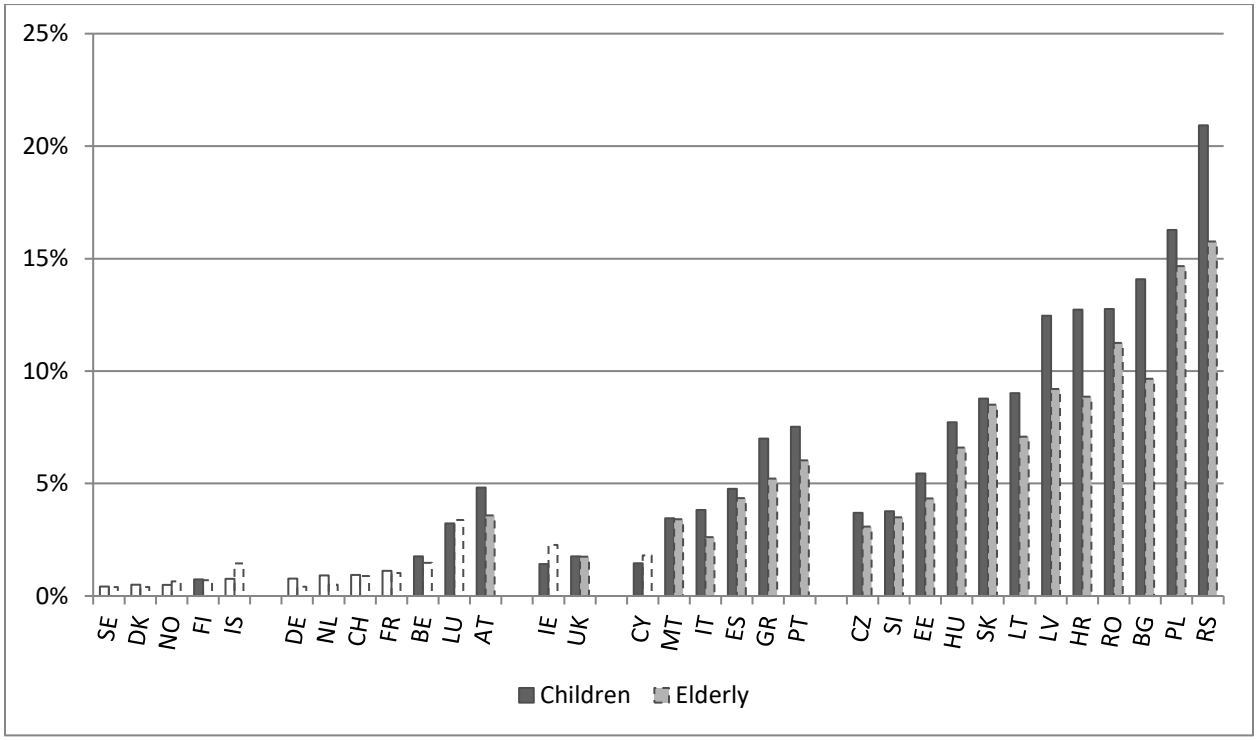
4 Financial solidarity within multigenerational households in Europe

In this section we present our empirical results: Section 4.1 presents a descriptive analysis of the prevalence of MGHs and poverty rates for children and the elderly; Section 4.2 gauges the direction of this solidarity; Section 4.3 estimates the importance of MGH membership for child poverty; and Section 4.4 assesses the impact of the income of the elderly under different hypotheses with regard to resource and cost-sharing.

4.1 Children and elderly people in multigenerational households in Europe: prevalence and poverty outcomes

Figure 1 shows the share of children and elderly people living in an MGHs, with countries grouped into the regions defined earlier. There is considerable cross-country variation. In the Nordic, Anglo-Saxon and most continental countries, the share of children and elderly people living in MGHs is often below 1%. Austria provides an exception, with close to 5% of children living with two other generations, and a somewhat smaller share of elderly individuals. In Southern Europe, the prevalence of children living in MGHs is close to or above 5%, with the exceptions of Cyprus and Malta, where it is less. It is well over 5% in most Eastern countries, with particularly high levels in Poland and the Serb Republic. In most countries, the share of children living in MGHs is larger than that of elderly individuals, as the typical MG household contains more children than elderly people.

Figure 1: Share of children and elderly individuals living in MGHs in Europe, 2013.



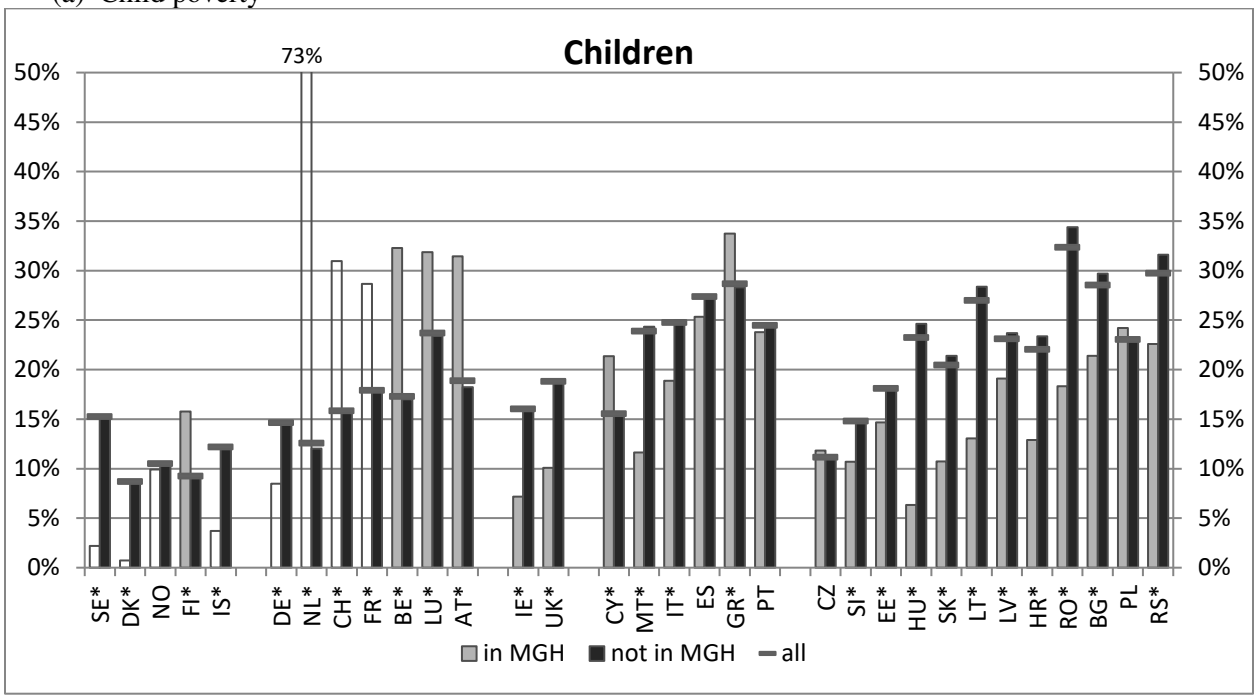
Notes: 1) Within each country group, countries are ranked from low to high share of children living in MGH.
2) Countries with less than 60 children, resp. elderly people living in MGH in the sample are in white.
Source: own calculations EU-SILC 2013.

On average the EU child poverty rate amounts to 19.7%, and the rate for children in MGHs is slightly higher (20.4%). There is, however, wide variation across countries (Figure 2a). For most countries the difference between the poverty rate for children living in MGHs and those not living in MGHs is statistically significant (exceptions are Norway, Spain, Portugal, the Czech Republic and Poland). For countries with statistically significant differences, poverty rates for children living in MGHs are higher than those for children in non-MGHs in the group of continental welfare states. For instance, in Belgium children in MGHs are almost twice as much at risk of being poor (32%) compared to children in non-MGHs (17%). It should be noted that the number of MGHs is very small in these countries (see Appendix Table A.2). Since this household form is so rare, it is not surprising that those MGHs that exist are a very particular subgroup. In these countries they only seem to form in families whose financial circumstances are especially dire. The Netherlands offers the most extreme example of this, with a child poverty rate of 73% for MGHs, versus 12% for all other households.

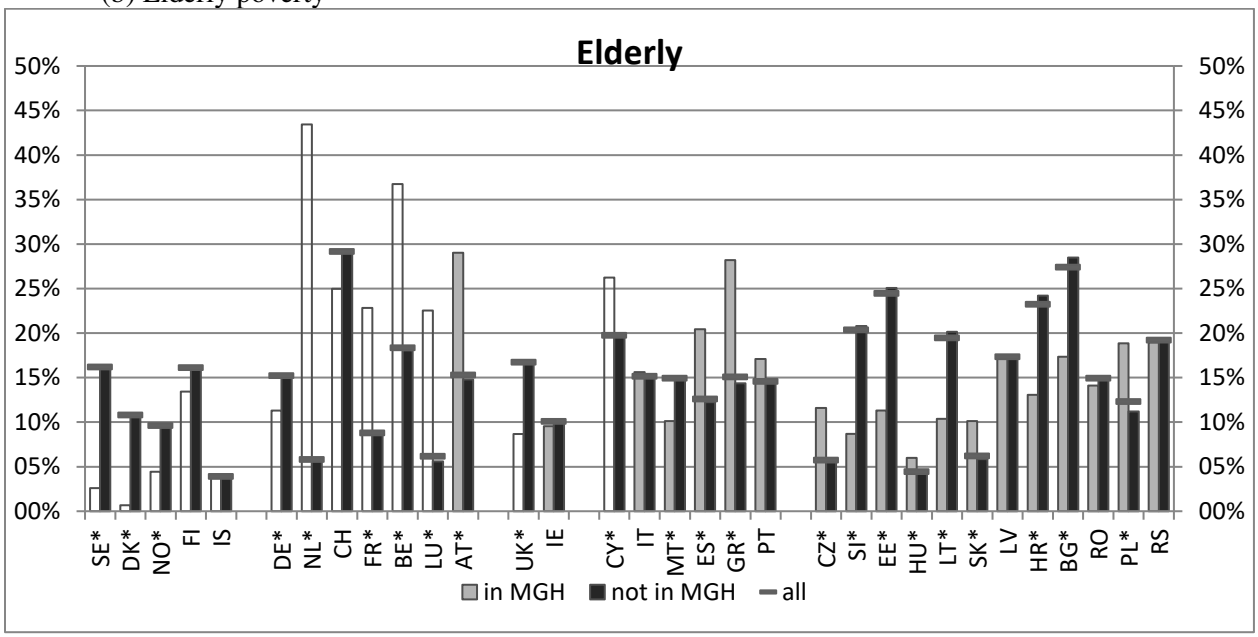
In contrast, in Anglo-Saxon and Eastern countries, we find much lower poverty rates for children in MGHs compared to other households. The difference in at-risk-of-poverty rate between both groups of children amounts to more than 10 percentage points in Hungary (18 percentage point difference), Romania (16%p) and Lithuania (15%p). For the Southern European countries, outcomes are mixed; in Italy and Malta children in non-MGHs are relatively more at risk of being poor, while in Cyprus and Greece children in MGHs have a higher poverty risk.

Figure 2: Poverty rates in Europe, according to membership of MGH, 2013.

(a) Child poverty



(b) Elderly poverty



Notes: 1) Within each country group, countries are ranked from low to high share of children, resp. elderly people living in MGH. 2) Countries with less than 60 children, resp. elderly living in MGH in the sample are in white. 3) * behind country name indicates significant difference in poverty rate between 'in MGH' and 'not in MGH' (at 95% confidence interval). 4) see Appendix Table A.5 for numbers.
Source: own calculations EU-SILC 2013.

We find marked differences across countries for elderly poverty rates as well. In Belgium, Spain and Greece, for example, elderly poverty rates in MGHs are well above those for the elderly living in non-MGHs (Figure 2b). However, in the Eastern European countries, the reverse applies. Especially in Bulgaria, Croatia, Estonia, Lithuania and Slovenia, we find that elderly individuals in MGHs have a much lower poverty risk than their counterparts in non-MGHs. When comparing poverty rates between children and elderly people in MGHs, children face a higher poverty risk in most countries. This is due to a composition effect, i.e. there are relatively more children in poor MGHs than elderly individuals in those households.

4.2 Direction of financial solidarity

These poverty outcomes are an indication of the fact that the financial benefit of MGH formation likely differs across countries, or across generations. Table 1 uses the formulae presented in Section 3.2 to calculate the direction of solidarity of MGH formation. Most children appear to benefit from living in an MGH: in all countries, more than half of the children live in a household where the direction of solidarity is 'pro-child' or 'mutual'. In countries with higher shares of children living in MGHs, these figures are generally substantially higher. The share of children living in a 'pro-elderly' household is relatively small,

especially in the Eastern European countries. For instance, the direction of solidarity is pro-child for 90% of children living in MGHs in Croatia and Slovenia, and for more than 80% of children living in Bulgaria, Estonia, Lithuania, Poland and Slovakia. MGHs tend to be relatively more pro-elderly in Southern Europe. For around 40% of elderly people living in these households, there is a (direct) benefit from their formation, compared to around 15-20% in Eastern countries. Hence, while the general direction is consistently pro-child, there are strong differences in the degree across countries.

When we look at the final three columns of Table 1, the pattern is very similar. This is not surprising, as the only differences accrue due to compositional effects in the number of children vs. the number of elderly people in MGHs. Hence, we can conclude that financial solidarity among MGHs predominantly goes in the direction of the children. This cross-sectional observation matches with an analysis of trends in the prevalence of grandparents living with grandchildren by Glaser et al (2018), highlighting the fact that grandparents in such households are increasingly being supportive rather than supported. Given this result, we focus in the remainder of the empirical analyses on children and the impact of the resources that the elderly bring into the household on child poverty.

Table 1: Direction of solidarity of MGH formation in Europe, represented by share of children, resp. elderly people, for which the direction of solidarity is either pro-child, pro-elderly or mutual, 2013.

	Share of children in …			Share of elderly in…		
Direction solidarity	Pro elderly	Mutual	Pro child	Pro elderly	Mutual	Pro child
SE	29.0%	20.0%	51.0%	31.7%	17.1%	51.2%
DK	34.8%	9.0%	56.2%	20.3%	9.8%	69.9%
NO	13.6%	23.3%	63.1%	18.4%	26.0%	55.6%
FI	6.7%	25.3%	68.0%	9.7%	23.8%	66.5%
IS	16.6%	39.5%	43.9%	26.1%	35.6%	38.3%
Avg	***20.2%***	***23.4%***	***56.4%***	***21.2%***	***22.5%***	***56.3%***
DE	6.4%	10.5%	83.1%	8.4%	15.5%	76.1%
NL	6.7%	12.3%	81.0%	17.1%	27.0%	55.9%
CH	24.8%	19.2%	55.9%	28.0%	23.6%	48.4%
FR	26.4%	11.0%	62.6%	28.2%	14.1%	57.7%
BE	40.2%	12.4%	47.4%	35.5%	25.9%	38.6%
LU	38.8%	0.4%	60.8%	29.5%	0.4%	70.1%
AT	25.2%	13.0%	61.8%	19.6%	18.4%	62.0%
Avg	***24.1%***	***11.2%***	***64.7%***	***23.7%***	***17.8%***	***58.4%***
IE	25.2%	4.4%	70.3%	34.3%	3.3%	62.4%
UK	29.4%	4.0%	66.5%	30.7%	7.4%	61.8%
Avg	***27.3%***	***4.2%***	***68.4%***	***32.5%***	***5.4%***	***62.1%***
CY	38.8%	8.8%	52.4%	46.0%	5.1%	48.9%
MT	39.7%	6.2%	54.1%	41.0%	7.0%	52.0%
IT	24.1%	15.0%	60.9%	23.0%	18.1%	58.9%
ES	25.1%	13.3%	61.6%	28.1%	17.7%	54.2%
GR	23.5%	15.4%	61.1%	26.1%	14.6%	59.3%
PT	18.4%	11.3%	70.3%	19.3%	12.9%	67.8%
Avg	***28.3%***	***11.7%***	***60.1%***	***30.6%***	***12.6%***	***56.9%***
CZ	21.2%	10.9%	67.9%	28.8%	11.2%	60.0%
SI	3.5%	5.7%	90.8%	5.8%	3.8%	90.4%
EE	8.9%	9.4%	81.6%	12.3%	12.6%	75.1%
HU	10.8%	15.2%	73.9%	14.0%	20.3%	65.7%
SK	12.7%	4.5%	82.7%	15.6%	8.1%	76.3%
LT	12.6%	6.0%	81.5%	20.1%	7.1%	72.8%
LV	13.7%	12.4%	73.9%	18.5%	15.7%	65.8%
HR	7.3%	3.5%	89.2%	10.3%	5.8%	83.9%
RO	8.0%	8.8%	83.1%	10.7%	12.8%	76.4%
BG	11.2%	5.8%	83.0%	9.6%	7.0%	83.4%
PL	8.1%	6.7%	85.1%	9.0%	11.2%	79.7%
RS	19.9%	8.2%	72.0%	19.2%	11.2%	69.6%
Avg	***11.5%***	***8.1%***	***80.4%***	***14.5%***	***10.6%***	***74.9%***

Note: Country group averages are unweighted.

Source: own calculations EU-SILC 2013.

4.3 Membership of an MGH as an explanatory factor in child poverty

We now enrich the outcomes presented in Figure 2(a) by applying a logistic regression for child poverty, controlling for different household characteristics. Table 2 presents the average marginal effect (ME) for the independent variables of interest, notably whether the child lives in an MGH (Model 1) and from which elderly person the income originated (Model 2) (for full results of the logistic regressions, see Appendix Table A.6). In more than half of the countries, Model 1 yields a statistically significant negative ME for the MGH variable. This means that children in MGHs are less likely to be poor (e.g. in Romania these MGH children are 21 percentage points less likely to be poor as compared to those in other living arrangements, given the same background characteristics). This is especially the case in all Eastern European countries. In Denmark and Austria, we find a statistically significant positive ME, meaning that MGH membership is linked to a higher likelihood of being poor. Note however, that the prevalence of MGHs is very low in this group, and that MGHs probably constitute a very particular subgroup. In the other Nordic and continental countries, size and statistical significance of MEs for MGH membership is typically low. This implies that the higher child poverty risks in MGHs that we observed in Figure 2(a) are explained by differences in background characteristics, which are controlled for in the logistics analysis.

Model 2 looks at the impact of income brought into the household by the elderly, separately for grandmothers, grandfathers and jointly. In the countries where the elderly income MEs are statistically significant, they generally have negative signs, both for income coming from men only, from women only and from men and women jointly. Hence, the presence of old-age incomes in the household reduces the risk of poverty for these children. As such, the income from the elderly overcomes their addition to the equivalence scale, also for elderly women who typically bring in less pension income. Exceptions are provided by Austria and Norway, where old-age income from women (Austria) or from men and women jointly (Norway) exhibits a positive (conditional) correlation with child poverty. In other words, the extra income brought in does not appear to cover the increase in living expenses through the equivalence scale in these cases. In France, Cyprus and Greece, Figure 2(a) shows higher poverty rates for children in MGHs than in non-MGHs. However, in these countries, being a member of an MGH reduces the risk of poverty: the regression shows that children in MGHs have a lower poverty risk than other children, when controlling for other background characteristics of their household. For most of the Eastern European countries, children in MGHs have a lower poverty risk than other children, both when we do not control for other background characteristics (as in Figure 2a) and when we do; when we control for background characteristics, the difference typically becomes larger. In other words, child poverty in MGHs is lower in these countries, although these MGHs are characterised by a lower socio-economic status, which would in itself lead to a greater poverty risk.

In the Eastern countries, we find that the effect of incomes from elderly men is stronger than that from elderly women. This is probably linked to the higher pensions that men on average receive and can contribute to household income. Interestingly, in some countries (Malta, Spain and Greece) the effect of a woman-only income is larger than that of a man-only one. Having an income from both an elderly man and an elderly woman present is also associated with a reduction in child poverty. In the majority of cases, however, this effect is lower than the sum of the separate effects for grandfathers and grandmothers. This result shows that the 'second' elderly person typically brings in comparatively less income[4]. In Cyprus, Greece, Estonia, Latvia and Poland, we even observe that the effect of two incomes is lower than at least one of the other effects, indicating that the second elderly person does not bring enough to compensate for his or her increase in the equivalence scale. In most countries, however, the effect of two incomes is still somewhat higher than each of the individual effects. Hence, while the second elderly person typically brings in comparatively less income, this is still more than a compensation for the increased living cost in most countries.

These outcomes suggest that MGH formation has different underlying reasons depending on the group of countries. We already mentioned that several factors can play a role, such as preferences, cultural patterns, care needs of the elderly, lack of adequate social protection and the socio-economic context. Our outcomes indicate that for the Nordic and Continental countries, other factors are at play than for the other three country groups. For these countries, we generally identify statistically insignificant MEs, which is largely driven by the low prevalence of MGHs. Other possible factors may include care needs of the elderly or specific individual choices, but our data do not allow us to provide more insights into these other determinants. For the Southern and especially the Eastern European countries it is very likely that an anti-poverty strategy is part of the considerations in the formation of MGHs. Pensions are relatively high in some of these countries, notably when compared to other cash transfers, which implies that the elderly can bring in a substantial income share. Given the higher prevalence of MGHs in these countries, the outcomes of these countries carry more weight. We aim to provide more insight into this anti-poverty strategy in the next section by performing a simulation analysis.

[4] In the majority of cases, the presence of only one pension income also means that only one elderly person is living in the household.

Table 2: Logistic regression on child poverty, average marginal effects (M.E.), 2013.

	Model 1			Model 2: income present of old-aged person								
	Member of MGH			Only old-aged female (OAF)			Only old-aged male (OAM)			Both female and male old-aged (OMF)		
	M.E.	Std err		M.E.	Std err		M.E.	Std err		M.E.	Std err	
SE	***-0.127***	*0.016*		*(omitted)*			***-0.125***	*0.017*		*(omitted)*		
DK	***0.158***	*0.052*		*0.101*	*0.157*		*0.048*	*0.039*	*c*	*0.342*	*0.198*	
NO	*0.062*	*0.052*		*(omitted)*			(omitted)			***0.505***	*0.241*	
FI	**-0.044**	0.019		-0.023	0.041		-0.043	0.027		(omitted)		
IS	*(omitted)*			*(omitted)*			(omitted)			*(omitted)*		
DE	*-0.061*	*0.04*		***-0.123***	*0.004*		*-0.019*	*0.078*		*(omitted)*		
NL	*0.067*	*0.057*		*0.183*	*0.116*	*b*	*-0.010*	*0.050*		*(omitted)*		
CH	*0.026*	*0.059*		*0.100*	*0.160*		*0.036*	*0.073*		*(omitted)*		
FR	***-0.117***	*0.020*		*-0.042*	*0.066*		***-0.130***	*0.019*		*(omitted)*		
BE	-0.051	0.035		(omitted)			**-0.185**	0.005		(omitted)		
LU	0.033	0.053		**-0.134**	0.060		**-0.152**	0.057		(omitted)		
AT	**0.231**	0.054		**0.401**	0.088	a	0.098	0.068		0.060	0.192	
IE	**-0.112**	0.025		**-0.137**	0.026		***-0.108***	0.039		-0.033	0.107	
UK	**-0.070**	0.035		-0.045	0.055		*-0.073*	0.062		**-0.107**	0.053	
CY	**-0.065**	0.031		0.017	0.057	a	**-0.123**	0.027		-0.034	0.070	
MT	**-0.142**	0.029		**-0.195**	0.030		**-0.136**	0.039		(omitted)		
IT	**-0.069**	0.022		**-0.061**	0.030		**-0.090**	0.031		**-0.121**	0.034	
ES	-0.041	0.022		**-0.123**	0.026	a	0.023	0.035	c	**-0.153**	0.032	
GR	-0.051	0.032		**-0.116**	0.040	a	0.012	0.051		-0.043	0.060	
PT	-0.037	0.036		0.012	0.047	b	-0.089	0.062		**-0.180**	0.042	
CZ	**-0.053**	0.015		0.000	0.029	a	**-0.073**	0.019		(omitted)		
SI	**-0.059**	0.012		-0.028	0.017	a,b	**-0.081**	0.016		**-0.106**	0.012	
EE	**-0.084**	0.023		**-0.068**	0.029		**-0.133**	0.029		**-0.087**	0.039	
HU	**-0.164**	0.024		**-0.142**	0.030	b	**-0.183**	0.038		**-0.230**	0.027	
SK	**-0.094**	0.024		**-0.071**	0.032		(omitted)			-0.077	0.046	
LT	**-0.152**	0.026		**-0.131**	0.033		**-0.161**	0.034		**-0.219**	0.044	
LV	**-0.096**	0.026		**-0.070**	0.031		**-0.144**	0.037		**-0.110**	0.042	
HR	**-0.062**	0.027		-0.050	0.032	b	**-0.109**	0.039		**-0.193**	0.033	
RO	**-0.211**	0.032		**-0.161**	0.040	b	**-0.246**	0.038		**-0.308**	0.035	
BG	**-0.131**	0.028		-0.064	0.039	a,b	**-0.158**	0.034		**-0.241**	0.032	
PL	**-0.042**	0.016		-0.030	0.020		**-0.078**	0.026	c	-0.011	0.033	
RS	**-0.067**	0.020		**-0.085**	0.024	b	**-0.104**	0.025	c	**-0.209**	0.027	

Notes: 1) Numbers in bold are significant at 95% confidence interval. 2) Countries with less than 60 children living in MGHs are put in italics. 3) Statistically significant difference between coefficients a=between OAF and OAM; b=between OAF and OMF; c=between OAM and OMF

Source: own calculations on EU-SILC 2013.

4.4 The impact of elderly income on child poverty: a pre-post analysis

We now calculate child poverty rates for the different scenarios explained in Section 3.4 and compare them with the baseline scenario in column (0), which is the standard approach of full sharing. Column (1) in Table 3 shows that income security of children in MGHs is to a very large extent due to the presence of elderly income. In almost all countries, poverty among this specific group of children would be more than twice as high if these incomes were not there. On average, poverty would increase from less than 20% (with elderly incomes) to around 50% (without these incomes). While the 'no sharing' scenario is not a realistic one, it illustrates the high importance of elderly income for MGHs as a substantial part of these households cannot pass the poverty threshold with only market income and non-pension transfers. Removing elderly incomes from household income is only part of the story as it ignores the impact of old-aged individuals on the equivalence scale: even if these elderly people do not, or only partially, share income with the rest of the household, one can suppose that they will contribute to covering (at least a part of) their own costs; hence, including them in the equivalence scale probably overestimates child poverty rates when their incomes are not shared with the younger generation in the household.

By construction, the impact of removing the old-aged person(s) from the equivalence scale (column (2)) leads to a drop in poverty rates compared to the simulation, which only removes elderly incomes (compare columns (1) and (2)). One could consider scenario (2) as an alternative benchmark, as this pertains to the situation where no MGH would be formed. In most countries, and especially those where there is a high prevalence of MGHs, poverty rates still remain at a much higher level than in the current situation where old-age incomes and their recipients are included in the household (income). Child poverty rates remain particularly high in all countries in Southern Europe and in Estonia, Hungary, Latvia, Poland, Romania and Serbia.

In column (3), we conduct the simulation where resources are not shared, but both households continue living under the same roof (thus benefiting from economies of scale). By construction, we find lower overall child poverty rates than under the previous scenario, as income for the child remains the same while the equivalence scale reduces. The size of these reductions in child poverty is often substantial. In many countries (especially the Eastern European countries), child poverty rates come close to those in the current situation (column (0)), indicating that not only elderly income but also the economies of scale play an important role in poverty outcomes of MGHs. In several of these Eastern countries, however, poverty rates under this scenario are still higher than in the current situation, pointing to the importance of the elderly income itself as part of an instrument to avoid poverty.

Finally, column (4) of Table 3 gives the outcomes for the case where (a plausible) part of elderly income would be shared. Though not as extreme as in the 'No sharing' scenario, this more plausible scenario shows that there are important consequences for child poverty in MGHs: e.g. in Greece 56.8% of children in MGHs would be poor when the old-aged person contributes only part of their pension to the household budget, as compared to 33.7% in the current situation. In the group of Southern countries as a whole, we see an increase in poverty risks of around 13 percentage points as compared to the baseline. In Eastern countries, this is around 6.7 percentage points. This difference largely reflects the higher degree of sharing in the latter group of countries, as reported in Table A.3.

We can conclude from these numbers that, for a sizeable share of children, the presence of elderly individuals in the household is an important element in preventing poverty. The benefits largely accrue by the addition of substantial income streams from pensions, but also partly through the economies of scale that MGHs bring. Especially in Eastern European countries, children living in MGHs benefit. This is confirmed by a longitudinal analysis that shows that MGHs are often formed in the year after substantial reductions in income from work[5]. Our analysis also strongly suggests that traditional poverty indicators may underestimate the reality of child poverty, since they overestimate the degree of income sharing in households.

[5] Given the small number of cases that make this transition in EU-SILC we do not present it here as a separate analysis.

Table 3: Poverty rate of children living in an MGH, current situation and different scenarios, 2013.

Sharing:	Full sharing		No sharing		Part of elderly income shared
Equivalence scale:	Unchanged (0)	Unchanged (1)	No elderly (2)	Split (3)	Unchanged (4)
SE	*2.2%*	*71.0%*	*52.7%*	*33.7%*	*22.9%*
DK	*0.7%*	*34.3%*	*24.9%*	*14.3%*	*0.7%*
NO	*9.9%*	*54.8%*	*34.9%*	*19.4%*	*26.3%*
FI	15.8%	26.7%	18.8%	15.9%	20.8%
IS	*3.7%*	*36.0%*	*17.8%*	*14.1%*	*3.7%*
Nordic	***6.5%***	***44.6%***	***29.8%***	***19.5%***	***14.9%***
DE	*8.5%*	*38.7%*	*17.9%*	*17.1%*	*10.6%*
NL	*72.8%*	*87.6%*	*86.9%*	*81.9%*	*81.1%*
CH	*31.0%*	*59.9%*	*44.6%*	*43.1%*	*40.3%*
FR	*28.7%*	*81.7%*	*59.3%*	*45.5%*	*33.7%*
BE	32.3%	54.4%	38.6%	28.8%	34.9%
LU	31.8%	51.5%	24.9%	14.0%	49.6%
AT	31.4%	51.6%	32.7%	29.2%	38.6%
Continental	***33.8%***	***60.8%***	***43.6%***	***37.1%***	***41.3%***
IE	7.2%	38.7%	32.4%	18.3%	32.1%
UK	10.1%	49.2%	21.6%	14.8%	12.3%
Anglo-Saxon	***8.6%***	***43.9%***	***27.0%***	***16.5%***	***22.2%***
CY	21.4%	50.3%	37.7%	31.8%	32.1%
MT	11.6%	63.0%	42.3%	26.8%	33.4%
IT	18.9%	54.7%	37.4%	32.6%	31.0%
ES	25.3%	61.4%	46.6%	39.1%	32.5%
GR	33.7%	71.6%	62.6%	56.0%	56.8%
PT	23.8%	55.8%	42.9%	38.5%	29.7%
Southern	***22.5%***	***59.5%***	***44.9%***	***37.5%***	***35.9%***
CZ	11.8%	45.0%	25.3%	20.6%	21.2%
SI	10.7%	34.2%	20.1%	14.5%	17.6%
EE	14.7%	48.2%	32.7%	23.5%	25.0%
HU	6.3%	43.7%	31.0%	24.2%	13.5%
SK	10.7%	34.6%	20.0%	18.1%	16.2%
LT	13.0%	40.9%	27.4%	20.8%	15.8%
LV	19.1%	43.7%	32.6%	25.1%	24.9%
HR	12.9%	35.3%	18.0%	13.4%	19.0%
RO	18.3%	52.6%	39.5%	29.0%	26.7%
BG	21.4%	37.2%	28.1%	27.2%	23.7%
PL	24.2%	52.0%	38.3%	32.5%	32.6%
RS	22.6%	48.8%	35.5%	32.8%	29.6%
Eastern	***15.5%***	***43.0%***	***29.1%***	***23.5%***	***22.2%***
Total	**19.0%**	**50.3%**	**35.2%**	**28.0%**	**27.8%**

Notes: 1) Countries with less than 60 children living in MGHs are put in italics. 2) Country groups averages are unweighted.
Source: own calculations on EU-SILC 2013.

5 Conclusion

Evidence on co-residence of younger and older generations mostly refers to the United States, though recently we also see an increase in studies on European countries. Most of the literature on MGHs has focused on their prevalence and on the impact of MGH formation on labour supply, on time spent on (in)formal care, and on different dimensions of child well-being, typically through country-specific studies. We contribute to the literature by providing empirical evidence for a wide range of European countries on how the sharing of incomes within MGHs – which are mainly pension incomes – affects child poverty. We have established that this form of intergenerational solidarity is dominantly beneficial for the children in MGHs and that the presence of the elderly and their income significantly affects child poverty rates within this group of households. Our pre-post analysis clearly illustrates the relevance of the formation of MGHs as a strategy to cope with poverty, thus giving empirical operationalisation of the theoretical concept of this form of intergenerational solidarity. In doing so, we have also critically tested the role of equivalence scales and the classical full resource-sharing assumption in standard poverty analysis, using EU-SILC data in a novel way. We found, on the one hand, that the hypotheses on the basis of which equivalence scales are constructed are of crucial importance and, on the other hand, that the full-sharing hypothesis probably yields a picture that is too rosy: the less sharing of resources, the more child poverty.

We observe significant differences between subgroups of European welfare states. Unsurprisingly, MGHs are most prevalent in Southern and Eastern European countries. Especially in these countries children in MGHs have lower poverty risks than other children, even when we control for socio-economic circumstances. The solidarity from older to younger generations that we find in these countries is likely related to the fact that the prevalence of MGHs is mainly high in welfare states where the social protection of working age families by cash transfers is relatively limited (notably when compared to the relative generosity of pension benefits in some of these countries). Although not designed for this purpose, the pensions in these countries thereby also alleviate child poverty. This is far less the case in the more mature welfare states, which are characterised by higher degrees of what Saraceno and Keck (2010) called 'de-familialisation'.

Although we establish a beneficial effect of MGH formation with regard to child poverty in a number of EU welfare states, the conclusion cannot be that policy should stimulate MGH formation. MGH formation is a short-term 'coping strategy', which in several countries is directly related to inadequate social protection safety nets. In the European context, this coping strategy may have negative consequences for children in important non-financial dimensions of their personal development (e.g. they are less likely to have an own room for study in an extended household). Moreover, in modernising societies, MGHs are

presumably rather a strategy of the past than a strategy of the future. However, policy-makers should consider the short-term beneficial impact of pensions on child poverty when implementing pension reform; even if we drop the assumption of 'full sharing of resources', pension incomes provide tangible support for children in MGHs. Hence, when pension spending is – for good reasons – rationalised in pension-heavy welfare states, there must be a parallel development of adequate family support systems, both in terms of cash benefits and social services. The fact that 'full sharing' is too optimistic as a hypothesis does not diminish the urgency of that conclusion: it implies that we underestimate how severe child poverty is in countries with a significant share of MGHs.

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Appendix:

Table A.1: Characteristics of multigenerational households, EU-SILC 2013.

(a) Characteristics old age person

	Share of children living in MG household where old-aged person is					
	present			in bad health		
	1 woman	1 man	1 woman + 1 man	Woman	Man	Both
Nordic	23.0%	61.6%	15.2%	0.7%	2.8%	0.0%
Continental	44.3%	39.9%	15.6%	8.4%	6.9%	0.2%
Anglo-Saxon	48.6%	31.9%	19.6%	7.2%	8.2%	1.3%
Southern	47.4%	27.8%	23.8%	16.7%	10.8%	4.1%
Eastern	56.1%	25.4%	17.7%	24.2%	8.5%	2.8%
Total	46.2%	35.1%	18.1%	13.5%	7.6%	1.9%

(b) Characteristics of household, comparison of two-generation (2gen) and three-generation household (3gen)

	Share of children living in household where							
	one working age adult		head of hh non-EU origin		head of hh higher education		household work intensity	
	2 gen	3 gen	2 gen	3 gen	2 gen	3 gen	2 gen	3 gen
Nordic	7.4%	42.0%	6.8%	15.2%	45.0%	30.6%	83.8%	72.0%
Continental	11.7%	31.4%	12.0%	24.4%	39.9%	28.9%	78.6%	67.7%
Anglo-Saxon	20.0%	31.0%	10.5%	14.0%	42.5%	22.0%	65.0%	54.5%
Southern	7.7%	18.0%	9.0%	6.8%	25.0%	10.3%	70.0%	55.3%
Eastern	7.7%	13.9%	11.7%	11.8%	23.3%	14.8%	70.3%	70.1%
Total	9.3%	24.0%	10.4%	14.3%	31.8%	20.0%	73.8%	66.1%

Source: own calculations on EU-SILC 2013.

Table A.2: Background information on MGHs: Number of cases (MGHs, children living in MGHs, elderly living in MGHs); importance of pensions in old-age income; importance of zero old-age income in MGHs, 2013.

	Number of cases			% of old-aged individuals where pensions are …% of individual income			% of children in MGH where none of elderly has income
	MG HH	Individuals in MG HH		0-49.9%	50-79.9%	80-100%	
		Children	Elderly				
SE	18	22	19	5.9%	35.3%	58.8%	4.7%
DK	31	53	37	23.1%	11.5%	65.4%	42.4%
NO	21	27	23	35.7%	7.1%	57.1%	2.3%
FI	47	67	56	3.6%	23.6%	72.7%	0.0%
IS	18	25	24	25.0%	18.8%	56.3%	0.0%
DE	26	35	27	16.0%	16.0%	68.0%	1.1%
NL	16	22	18	5.9%	0.0%	94.1%	0.0%
CH	22	28	25	26.1%	17.4%	56.5%	23.1%
FR	42	55	44	7.3%	12.2%	80.5%	2.4%
BE	34	61	41	4.0%	8.0%	88.0%	44.9%
LU	47	77	53	2.4%	0.0%	97.6%	53.0%
AT	53	95	67	8.7%	17.4%	73.9%	18.8%
IE	42	62	47	2.3%	7.0%	90.7%	3.9%
UK	58	87	72	8.3%	15.3%	76.4%	0.0%
CY	42	60	52	12.8%	7.7%	79.5%	15.1%
MT	66	92	82	7.7%	9.2%	83.1%	6.6%
IT	229	341	293	4.2%	5.0%	90.8%	9.6%
ES	251	378	322	5.3%	13.7%	81.0%	6.4%
GR	127	188	167	3.0%	2.3%	94.7%	5.1%
PT	168	232	209	5.9%	25.3%	68.8%	1.7%
CZ	91	139	108	1.9%	12.1%	86.0%	0.0%
SI	302	454	378	0.0%	2.1%	97.9%	0.2%
EE	159	261	182	3.4%	6.1%	90.5%	2.9%
HU	205	288	234	0.4%	2.6%	97.0%	0.4%
SK	148	227	178	4.0%	35.6%	60.5%	0.0%
LT	160	222	196	5.1%	6.6%	88.3%	0.0%
LV	259	380	314	3.9%	4.5%	91.6%	0.5%
HR	200	325	237	1.4%	7.0%	91.6%	2.6%
RO	186	281	233	3.5%	7.0%	89.6%	2.3%
BG	211	290	260	6.4%	6.0%	87.6%	2.1%
PL	640	1041	785	2.1%	2.7%	95.2%	0.1%
RS	586	955	754	16.9%	6.3%	76.8%	7.4%

Source: own calculations on EU-SILC 2013.

Table A.3: Share children according to the intra-household income sharing arrangements, comparison of two-generation (2gen) and three-generation household (3gen), 2010

	all income is common			some income is common			all income is private		
	all	2gen	3gen	all	2gen	3gen	all	2gen	3gen
SE	75.5%	75.5%	74.1%	21.2%	21.2%	17.5%	3.3%	3.3%	8.4%
DK	75.5%	75.5%	90.5%	18.3%	18.4%	6.2%	6.1%	6.2%	3.3%
NO	64.4%	64.4%	61.7%	22.0%	22.0%	25.5%	13.5%	13.5%	12.8%
FI	59.2%	59.5%	33.4%	32.6%	32.3%	57.7%	8.1%	8.1%	8.9%
IS	65.0%	65.4%	16.3%	31.1%	30.8%	74.9%	3.8%	3.8%	8.8%
Avg	*67.9%*	*68.1%*	*55.2%*	*25.0%*	*24.9%*	*36.4%*	*7.0%*	*7.0%*	*8.4%*
DE	78.1%	78.3%	65.0%	16.9%	16.8%	21.8%	4.7%	4.6%	13.2%
NL	75.0%	74.9%	80.9%	19.1%	19.2%	2.3%	5.9%	5.8%	16.8%
FR	75.0%	74.9%	77.5%	14.7%	14.9%	7.1%	9.8%	9.7%	15.4%
BE	84.3%	84.5%	76.5%	10.2%	10.0%	22.1%	5.4%	5.4%	1.5%
LU	76.9%	77.0%	74.8%	15.1%	15.1%	16.3%	7.9%	7.9%	8.9%
AT	62.8%	64.7%	20.4%	21.7%	20.4%	51.2%	15.5%	14.9%	28.5%
Avg	*75.3%*	*75.7%*	*65.8%*	*16.3%*	*16.1%*	*20.1%*	*8.2%*	*8.1%*	*14.0%*
IE	75.8%	76.1%	61.8%	7.0%	6.9%	11.3%	16.1%	15.8%	27.0%
UK	72.1%	72.3%	60.4%	19.7%	19.6%	27.6%	7.8%	7.7%	12.0%
Avg	*74.0%*	*74.2%*	*61.1%*	*13.4%*	*13.3%*	*19.4%*	*12.0%*	*11.8%*	*19.5%*
CY	61.2%	61.3%	52.6%	38.2%	38.0%	47.4%	0.6%	0.6%	0.0%
MT	91.6%	91.7%	90.5%	7.0%	7.0%	6.5%	1.0%	0.9%	3.0%
IT	85.2%	85.9%	68.0%	8.0%	7.5%	19.0%	5.1%	4.7%	13.0%
ES	88.5%	89.6%	66.8%	8.9%	7.9%	29.4%	2.4%	2.4%	3.7%
GR	92.3%	92.9%	79.9%	6.5%	6.1%	15.9%	1.2%	1.0%	4.2%
PT	81.7%	83.4%	55.1%	14.7%	12.9%	42.7%	2.9%	3.1%	1.3%
Avg	*83.4%*	*84.2%*	*68.8%*	*13.9%*	*13.2%*	*26.8%*	*2.2%*	*2.1%*	*4.2%*
CZ	78.2%	79.7%	38.1%	20.7%	19.2%	58.4%	1.1%	1.0%	3.4%
SI	71.2%	73.2%	33.5%	19.4%	17.9%	49.1%	9.4%	9.0%	17.5%
EE	63.5%	65.1%	35.7%	32.9%	31.3%	59.7%	3.6%	3.5%	4.7%
HU	87.3%	89.2%	64.9%	11.4%	9.7%	32.1%	1.2%	1.1%	3.1%
SK	72.7%	75.8%	37.9%	25.6%	22.7%	59.0%	1.6%	1.5%	3.1%
LT	79.5%	81.6%	58.4%	17.7%	15.6%	38.8%	2.8%	2.8%	2.8%
LV	70.5%	75.0%	46.8%	23.4%	20.6%	38.1%	6.0%	4.2%	15.1%
RO	88.2%	91.1%	73.0%	10.7%	8.4%	22.8%	1.1%	0.6%	4.1%
BG	76.0%	79.6%	59.3%	22.4%	18.9%	38.9%	1.4%	1.3%	1.8%
PL	76.5%	80.7%	48.5%	21.0%	16.9%	48.8%	2.4%	2.4%	2.7%
Avg	*76.4%*	*79.1%*	*49.6%*	*20.5%*	*18.1%*	*44.6%*	*3.1%*	*2.7%*	*5.8%*

Notes: 1) Shares are based on answers to the question (variable HA010) "How are the incomes you receive in your household dealt with?", with possible answers: (a) all income as common resources; (b) some incomes as common resources and rest as private resources; (c) all incomes as private resources of the person receiving; (d) no income received in the household); 2) Averages (Avg) per country group are unweighted.
Source: own calculations on EU-SILC 2010, ad hoc module "Intra-household sharing of resources".

Table A.4: Share of old-aged individuals in MGHs that share part of their personal income in common household budget, 2010.

	None	Less than 50%	Around 50%	More than 50%	All	Average of income shared (*)
SE	*24.0%*	*0.0%*	*24.0%*	*16.0%*	*36.0%*	60.0%
DK	*0.0%*	*0.0%*	*0.3%*	*0.0%*	*99.7%*	99.8%
NO	*0.0%*	*35.1%*	*7.9%*	*57.1%*	*0.0%*	55.5%
FI	*29.4%*	*34.9%*	*2.2%*	*19.8%*	*13.7%*	38.4%
IS	*0.0%*	*18.6%*	*35.2%*	*0.0%*	*46.2%*	68.4%
Avg	*10.7%*	*17.7%*	*13.9%*	*18.6%*	*39.1%*	*64.4%*
DE	*18.4%*	*17.6%*	*13.1%*	*3.8%*	*47.1%*	60.9%
NL	*44.7%*	*0.0%*	*0.0%*	*7.8%*	*47.5%*	53.4%
FR	*0.0%*	*2.0%*	*0.0%*	*59.7%*	*38.3%*	83.6%
BE	*34.0%*	*7.3%*	*5.7%*	*6.6%*	*46.5%*	56.1%
LU	36.1%	9.3%	9.0%	13.9%	31.7%	48.9%
AT	*25.7%*	*39.3%*	*4.7%*	*12.8%*	*17.5%*	39.3%
Avg	*26.5%*	*12.6%*	*5.4%*	*17.4%*	*38.1%*	*57.0%*
IE	*36.8%*	*14.9%*	*10.1%*	*7.0%*	*31.2%*	*45.2%*
UK	*8.6%*	*1.5%*	*11.8%*	*47.3%*	*30.9%*	*72.6%*
Avg	*22.7%*	*8.2%*	*11.0%*	*27.1%*	*31.0%*	*58.9%*
CY	*15.3%*	*4.5%*	*5.3%*	*34.2%*	*40.7%*	*70.2%*
MT	*15.8%*	*2.0%*	*3.7%*	*52.5%*	*26.0%*	*67.7%*
IT	14.1%	4.7%	1.6%	20.1%	59.5%	*76.6%*
ES	13.2%	4.3%	6.5%	5.7%	70.3%	*78.9%*
GR	18.7%	12.3%	11.1%	19.4%	38.5%	*61.7%*
PT	20.4%	6.3%	5.5%	15.2%	52.6%	*68.3%*
Avg	*16.2%*	*5.7%*	*5.6%*	*24.5%*	*47.9%*	*70.6%*
CZ	10.2%	24.2%	20.4%	13.4%	31.7%	58.0%
SI	12.8%	8.4%	16.9%	56.1%	5.8%	*58.4%*
EE	11.6%	7.8%	26.1%	27.1%	27.4%	62.8%
HU	1.9%	10.4%	9.8%	27.5%	50.4%	78.6%
SK	6.7%	17.4%	10.2%	40.6%	25.0%	65.0%
LT	2.8%	7.1%	13.6%	20.5%	55.9%	79.9%
LV	4.5%	11.9%	11.7%	40.3%	31.6%	70.7%
RO	7.9%	9.2%	4.0%	48.1%	30.8%	*71.1%*
BG	6.0%	4.1%	5.9%	19.9%	64.1%	*83.0%*
PL	12.0%	13.0%	14.3%	23.3%	37.4%	65.3%
Avg	*7.6%*	*11.4%*	*13.3%*	*31.7%*	*36.0%*	*69.3%*

Notes: 1) Shares are based on answers to the question (variable PA010) "What proportion of your personal income do you keep separate from the common household budget?" with possible answers: (a) all my personal income; (b) more than half of my personal income; (c) about half of my personal income; (d) less than half of my personal income; (e) none; (f) the respondent has nor personal income; 2) Countries with less than 60 cases answering this question are put in italics and light grey font; 3) * calculated as the weighted average of shares, where 'less than 50%' is counted as 25% sharing and 'More than 50%' as 75% sharing. For countries where there is no information available on this question, the corresponding country group average has been used. 4) Averages (Avg) per country group are unweighted.

Source: own calculations on EU-SILC 2010, ad hoc module "Intra-household sharing of resources".

Table A.5: Poverty rates in Europe, according to membership of MGH, 2013

	Children			Elderly		
	all	In MGH	Not in MGH	all	In MGH	Not in MGH
SE	15.3%	2.2%	15.3%	16.2%	2.6%	16.2%
DK	8.7%	0.7%	8.7%	10.8%	0.7%	10.9%
NO	10.5%	9.9%	10.5%	9.6%	4.4%	9.6%
FI	9.3%	15.8%	9.2%	16.1%	13.4%	16.2%
IS	12.2%	3.7%	12.3%	3.9%	3.9%	3.9%
DE	14.7%	8.5%	14.7%	15.2%	11.3%	15.2%
NL	12.6%	72.8%	12.0%	5.8%	43.4%	5.6%
CH	15.8%	31.0%	15.7%	29.2%	25.0%	29.2%
FR	17.9%	28.7%	17.8%	8.8%	22.8%	8.6%
BE	17.3%	32.3%	17.0%	18.3%	36.7%	18.1%
LU	23.7%	31.8%	23.4%	6.2%	22.5%	5.6%
AT	18.9%	31.4%	18.2%	15.3%	29.0%	14.8%
IE	16.0%	7.2%	16.2%	10.1%	9.5%	10.1%
UK	18.8%	10.1%	19.0%	16.7%	8.7%	16.9%
CY	15.6%	21.4%	15.5%	19.8%	26.2%	19.6%
MT	23.9%	11.6%	24.3%	14.9%	10.1%	15.1%
IT	24.8%	18.9%	25.0%	15.1%	15.6%	15.1%
ES	27.4%	25.3%	27.5%	12.6%	20.4%	12.2%
GR	28.7%	33.7%	28.3%	15.1%	28.2%	14.4%
PT	24.4%	23.8%	24.5%	14.6%	17.1%	14.4%
CZ	11.1%	11.8%	11.1%	5.7%	11.6%	5.6%
SI	14.8%	10.7%	15.0%	20.4%	8.7%	20.8%
EE	18.1%	14.7%	18.3%	24.5%	11.3%	25.1%
HU	23.2%	6.3%	24.6%	4.4%	6.0%	4.3%
SK	20.5%	10.7%	21.4%	6.2%	10.1%	5.9%
LT	27.0%	13.0%	28.4%	19.5%	10.4%	20.2%
LV	23.1%	19.1%	23.7%	17.3%	17.3%	17.3%
HR	22.0%	12.9%	23.4%	23.2%	13.1%	24.2%
RO	32.3%	18.3%	34.4%	14.9%	14.1%	15.0%
BG	28.5%	21.4%	29.7%	27.4%	17.4%	28.5%
PL	23.0%	24.2%	22.8%	12.3%	18.9%	11.2%
RS	29.7%	22.6%	31.6%	19.2%	19.0%	19.3%

Source: own calculations on EU-SILC 2013.

Table A.6: Logistic regression on child poverty, coefficients, standard errors and confidence intervals (CI), 2013

Panel (a): Model 1

		Member of MGH	One Adult	Health OAM	Health OAF	HHH Migrant	HHH Higher education	HHH age	HH Work intensity	Constant
SE	coeff.	-3.524	1.951			1.361	-0.937	-0.010	-4.008	1.319
	std err	1.149	0.179	omitted	omitted	0.146	0.142	0.008	0.212	0.390
	CI lower	-5.776	1.600			1.075	-1.214	-0.026	-4.424	0.555
	CI upper	-1.273	2.302			1.646	-0.659	0.006	-3.592	2.083
DK	coeff.	1.840	-0.365			0.034	-1.218	-0.004	-3.190	0.051
	std err	0.394	0.311	omitted	omitted	0.270	0.198	0.010	0.243	0.492
	CI lower	1.067	-0.974			-0.496	-1.607	-0.024	-3.666	-0.914
	CI upper	2.613	0.245			0.563	-0.830	0.016	-2.713	1.016
NO	coeff.	0.842	1.701			1.546	-0.352	-0.027	-2.566	0.345
	std err	0.556	0.163	omitted	omitted	0.181	0.145	0.009	0.203	0.388
	CI lower	-0.248	1.383			1.191	-0.636	-0.044	-2.964	-0.415
	CI upper	1.932	2.020			1.901	-0.069	-0.011	-2.167	1.105
FI	coeff.	-0.904	0.704			0.847	-1.300	0.008	-3.278	-0.185
	std err	0.544	0.160	omitted	omitted	0.194	0.126	0.006	0.162	0.256
	CI lower	-1.970	0.389			0.467	-1.546	-0.003	-3.594	-0.686
	CI upper	0.161	1.018			1.226	-1.053	0.020	-2.961	0.317
IS	coeff.		0.738			-0.090	-0.634	-0.050	-1.929	1.361
	std err	omitted	0.217	omitted	omitted	0.408	0.177	0.009	0.223	0.408
	CI lower		0.312			-0.890	-0.980	-0.068	-2.367	0.561
	CI upper		1.164			0.709	-0.287	-0.031	-1.492	2.160
DE	coeff.	-0.917	1.223	0.956	1.400	0.213	-1.249	-0.004	-2.423	0.121
	std err	0.868	0.123	1.793	2.067	0.163	0.122	0.007	0.151	0.299
	CI lower	-2.618	0.982	-2.559	-2.652	-0.106	-1.488	-0.018	-2.719	-0.465
	CI upper	0.783	1.464	4.471	5.451	0.533	-1.010	0.009	-2.126	0.706
NL	coeff.	0.979	-0.281			0.906	-0.674	-0.010	-3.257	0.382
	std err	0.620	0.199	omitted	omitted	0.187	0.133	0.009	0.195	0.426
	CI lower	-0.236	-0.671			0.540	-0.936	-0.027	-3.639	-0.453
	CI upper	2.194	0.108			1.272	-0.413	0.007	-2.875	1.217
CH	coeff.	0.239	1.576			0.920	-1.028	-0.011	-2.328	0.298
	std err	0.508	0.161	omitted	omitted	0.149	0.120	0.008	0.179	0.358
	CI lower	-0.757	1.260			0.628	-1.262	-0.026	-2.680	-0.404
	CI upper	1.234	1.891			1.211	-0.793	0.005	-1.977	1.000

		Member of MGH	One Adult	Health OAM	Health OAF	HHH Migrant	HHH Higher education	HHH age	HH Work intensity	Constant
FR	coeff.	-1.714	1.389			1.257	-1.500	-0.017	-3.439	1.607
	std err	0.459	0.112	omitted	omitted	0.117	0.110	0.005	0.135	0.226
	CI lower	-2.612	1.169			1.026	-1.715	-0.027	-3.703	1.163
	CI upper	-0.815	1.610			1.487	-1.285	-0.006	-3.174	2.050
BE	coeff.	-0.697	0.811	0.177	2.412	1.525	-1.007	-0.014	-3.805	1.141
	std err	0.536	0.166	0.981	1.073	0.135	0.156	0.008	0.183	0.361
	CI lower	-1.747	0.485	-1.746	0.310	1.261	-1.312	-0.029	-4.163	0.432
	CI upper	0.353	1.136	2.100	4.514	1.789	-0.701	0.002	-3.446	1.849
LU	coeff.	0.247	1.301	-1.283	0.403	1.319	-1.634	-0.034	-2.626	1.900
	std err	0.382	0.181	0.924	0.752	0.141	0.188	0.008	0.203	0.401
	CI lower	-0.502	0.946	-3.095	-1.071	1.044	-2.001	-0.050	-3.023	1.114
	CI upper	0.996	1.656	0.529	1.878	1.595	-1.266	-0.019	-2.229	2.685
AT	coeff.	1.423	0.775	-2.164		1.027	-0.177	-0.029	-2.332	0.896
	std err	0.276	0.145	1.168	omitted	0.131	0.145	0.007	0.179	0.317
	CI lower	0.882	0.491	-4.454		0.770	-0.462	-0.043	-2.682	0.275
	CI upper	1.965	1.060	0.125		1.283	0.108	-0.015	-1.981	1.516
IE	coeff.	-1.519	0.670			0.326	-0.158	0.021	-3.161	-1.233
	std err	0.552	0.126	omitted	omitted	0.159	0.118	0.007	0.166	0.284
	CI lower	-2.600	0.423			0.014	-0.389	0.008	-3.486	-1.790
	CI upper	-0.437	0.917			0.637	0.073	0.034	-2.836	-0.676
UK	coeff.	-0.630	-0.402			0.587	-0.813	0.003	-1.964	-0.142
	std err	0.385	0.098	omitted	omitted	0.103	0.094	0.005	0.107	0.197
	CI lower	-1.385	-0.595			0.384	-0.998	-0.006	-2.174	-0.527
	CI upper	0.125	-0.209			0.789	-0.629	0.012	-1.754	0.244
CY	coeff.	-0.869	1.577	1.380	0.858	1.654	-1.637	-0.013	-3.883	1.367
	std err	0.509	0.262	0.832	1.072	0.193	0.206	0.008	0.235	0.396
	CI lower	-1.867	1.064	-0.251	-1.242	1.275	-2.041	-0.029	-4.343	0.591
	CI upper	0.128	2.090	3.010	2.958	2.033	-1.232	0.003	-3.424	2.144
MT	coeff.	-1.356	0.026			0.129	-1.753	-0.041	-4.526	3.464
	std err	0.373	0.278	omitted	omitted	0.258	0.289	0.007	0.267	0.386
	CI lower	-2.087	-0.519			-0.377	-2.319	-0.055	-5.050	2.708
	CI upper	-0.626	0.572			0.635	-1.187	-0.026	-4.002	4.219

		Member of MGH	One Adult	Health OAM	Health OAF	HHH Migrant	HHH Higher education	HHH age	HH Work intensity	Constant
IT	coeff.	-0.648	1.405	0.492	0.522	0.531	-0.920	-0.031	-4.363	2.740
	std err	0.234	0.125	0.463	0.373	0.099	0.130	0.005	0.133	0.221
	CI lower	-1.106	1.160	-0.416	-0.210	0.337	-1.174	-0.040	-4.624	2.307
	CI upper	-0.190	1.650	1.400	1.253	0.725	-0.665	-0.022	-4.102	3.172
ES	coeff.	-0.326	0.715	-0.325	-0.121	1.004	-1.116	-0.023	-3.727	2.227
	std err	0.183	0.146	0.445	0.310	0.102	0.096	0.004	0.122	0.216
	CI lower	-0.685	0.428	-1.198	-0.728	0.803	-1.304	-0.032	-3.965	1.804
	CI upper	0.032	1.001	0.548	0.486	1.205	-0.928	-0.014	-3.489	2.650
GR	coeff.	-0.389	0.109	1.234	-0.566	1.171	-1.619	-0.008	-3.758	1.672
	std err	0.255	0.242	0.474	0.455	0.149	0.160	0.006	0.187	0.313
	CI lower	-0.889	-0.365	0.305	-1.458	0.878	-1.934	-0.021	-4.123	1.058
	CI upper	0.112	0.584	2.163	0.325	1.463	-1.305	0.004	-3.392	2.285
PT	coeff.	-0.292	0.351	-0.076	-0.080	0.339	-1.422	-0.023	-3.807	2.567
	std err	0.297	0.180	0.480	0.409	0.197	0.242	0.006	0.168	0.302
	CI lower	-0.873	-0.001	-1.017	-0.882	-0.048	-1.896	-0.035	-4.137	1.975
	CI upper	0.289	0.704	0.865	0.721	0.725	-0.948	-0.011	-3.476	3.159
CZ	coeff.	-1.125	1.718	0.716		0.931	-1.437	0.005	-4.149	0.174
	std err	0.447	0.192	1.472	omitted	0.576	0.270	0.008	0.233	0.376
	CI lower	-2.001	1.342	-2.170		-0.198	-1.965	-0.012	-4.605	-0.563
	CI upper	-0.249	2.094	3.601		2.060	-0.908	0.021	-3.693	0.911
SI	coeff.	-1.003	1.979	1.103	1.131	0.561	-1.211	-0.034	-5.418	3.583
	std err	0.261	0.241	0.683	0.575	0.147	0.172	0.006	0.220	0.320
	CI lower	-1.515	1.507	-0.237	0.004	0.272	-1.548	-0.046	-5.849	2.956
	CI upper	-0.490	2.451	2.442	2.258	0.850	-0.874	-0.022	-4.988	4.210
EE	coeff.	-0.798	2.148		-0.049	0.586	-0.938	0.012	-3.800	0.584
	std err	0.258	0.194	omitted	0.422	0.191	0.138	0.006	0.203	0.262
	CI lower	-1.304	1.767		-0.875	0.211	-1.210	0.001	-4.199	0.071
	CI upper	-0.293	2.528		0.778	0.961	-0.667	0.024	-3.402	1.097
HU	coeff.	-1.852	0.623	0.942	-0.094		-2.921	-0.023	-4.996	2.727
	std err	0.364	0.181	0.639	0.511	omitted	0.293	0.005	0.166	0.230
	CI lower	-2.565	0.269	-0.310	-1.095		-3.495	-0.033	-5.321	2.277
	CI upper	-1.139	0.977	2.193	0.907		-2.347	-0.013	-4.671	3.178

		Member of MGH	One Adult	Health OAM	Health OAF	HHH Migrant	HHH Higher education	HHH age	HH Work intensity	Constant
SK	coeff.	-1.348	1.514		0.598		-1.423	-0.013	-4.941	2.221
	std err	0.457	0.310	omitted	0.598	omitted	0.220	0.008	0.261	0.359
	CI lower	-2.243	0.906		-0.573		-1.854	-0.029	-5.453	1.518
	CI upper	-0.453	2.122		1.770		-0.993	0.002	-4.430	2.925
LT	coeff.	-1.508	1.481	-2.135	0.862	0.155	-1.600	-0.027	-3.589	2.870
	std err	0.340	0.208	1.215	0.590	0.408	0.200	0.008	0.247	0.383
	CI lower	-2.175	1.072	-4.517	-0.295	-0.644	-1.991	-0.042	-4.073	2.119
	CI upper	-0.841	1.889	0.247	2.018	0.955	-1.209	-0.012	-3.105	3.621
LV	coeff.	-0.748	1.078	-0.705	0.059	-0.165	-1.528	-0.004	-2.676	0.960
	std err	0.225	0.138	0.541	0.309	0.239	0.157	0.005	0.168	0.263
	CI lower	-1.189	0.807	-1.766	-0.547	-0.633	-1.836	-0.014	-3.006	0.444
	CI upper	-0.306	1.350	0.355	0.665	0.302	-1.220	0.007	-2.346	1.476
HR	coeff.	-0.526	0.535	-0.651	1.275	0.661	-0.632	-0.028	-4.192	2.324
	std err	0.242	0.366	0.821	0.432	0.180	0.251	0.007	0.230	0.345
	CI lower	-1.000	-0.183	-2.260	0.428	0.309	-1.124	-0.041	-4.642	1.648
	CI upper	-0.051	1.253	0.959	2.122	1.014	-0.140	-0.015	-3.741	3.000
RO	coeff.	-1.319	0.768	-0.404	0.324		-3.983	-0.004	-2.516	1.628
	std err	0.250	0.247	0.507	0.423	omitted	0.716	0.006	0.182	0.302
	CI lower	-1.809	0.284	-1.397	-0.505		-5.386	-0.015	-2.874	1.036
	CI upper	-0.829	1.253	0.589	1.153		-2.580	0.007	-2.159	2.221
BG	coeff.	-1.156	0.393	1.479	0.684		-1.293	0.006	-4.587	1.435
	std err	0.277	0.302	0.473	0.416	omitted	0.285	0.006	0.247	0.294
	CI lower	-1.700	-0.199	0.552	-0.132		-1.852	-0.006	-5.072	0.859
	CI upper	-0.612	0.985	2.407	1.500		-0.733	0.019	-4.103	2.010
PL	coeff.	-0.267	0.293	0.011	0.589	0.779	-1.742	-0.016	-2.165	1.214
	std err	0.110	0.132	0.204	0.168	0.573	0.122	0.003	0.093	0.149
	CI lower	-0.482	0.034	-0.389	0.260	-0.344	-1.980	-0.022	-2.347	0.922
	CI upper	-0.053	0.551	0.411	0.918	1.901	-1.504	-0.010	-1.982	1.506
RS	coeff.	-0.446	0.687	0.339	0.457		-1.701	-0.016	-3.301	1.976
	std err	0.138	0.222	0.241	0.198	omitted	0.198	0.004	0.140	0.210
	CI lower	-0.717	0.252	-0.134	0.069		-2.089	-0.024	-3.575	1.565
	CI upper	-0.175	1.122	0.811	0.846		-1.313	-0.008	-3.026	2.387

Panel (b) : Model 2

		Income OAF	Income OAM	Income OAF+OAM	One Adult	Health OAM	Health OAF	HHH Migrant	HHH Higher education	HHH age	HH Work intensity	Constant
SE	coeff.		-3.412		1.951			1.361	-0.937	-0.010	-4.007	1.320
	std err	omitted	1.170	omitted	0.179	omitted	omitted	0.146	0.142	0.008	0.212	0.390
	CI lower		-5.706		1.600			1.076	-1.214	-0.026	-4.423	0.556
	CI upper		-1.118		2.303			1.646	-0.659	0.006	-3.591	2.084
DK	coeff.	1.344	0.764	2.950	-0.350			0.102	-1.256	-0.001	-3.192	-0.041
	std err	1.481	0.503	1.048	0.314	omitted	omitted	0.267	0.200	0.011	0.244	0.497
	CI lower	-1.559	-0.222	0.896	-0.965			-0.421	-1.649	-0.022	-3.669	-1.016
	CI upper	4.247	1.750	5.003	0.265			0.625	-0.864	0.020	-2.714	0.933
NO	coeff.			3.460	1.753			1.467	-0.351	-0.025	-2.575	0.250
	std err	omitted	omitted	1.125	0.163	omitted	omitted	0.185	0.145	0.009	0.205	0.394
	CI lower			1.255	1.433			1.104	-0.636	-0.042	-2.976	-0.522
	CI upper			5.664	2.073			1.829	-0.066	-0.008	-2.174	1.023
FI	coeff.	-0.411	-0.884		0.697			0.845	-1.302	0.008	-3.275	-0.182
	std err	0.823	0.744	omitted	0.161	omitted	omitted	0.194	0.126	0.006	0.162	0.256
	CI lower	-2.023	-2.342		0.382			0.466	-1.549	-0.003	-3.593	-0.683
	CI upper	1.201	0.574		1.012			1.225	-1.055	0.020	-2.958	0.320
IS	coeff.				0.738			-0.090	-0.634	-0.050	-1.929	1.361
	std err	omitted	omitted	omitted	0.217	omitted	omitted	0.408	0.177	0.009	0.223	0.408
	CI lower				0.312			-0.890	-0.980	-0.068	-2.367	0.561
	CI upper				1.164			0.709	-0.287	-0.031	-1.492	2.160
DE	coeff.	-13.4	-0.232		1.215	0.275	13.9	0.212	-1.247	-0.005	-2.420	0.141
	std err	685.7	1.029	omitted	0.123	1.872	685.7	0.163	0.122	0.007	0.151	0.300
	CI lower	-1357.3	-2.249		0.973	-3.393	-1330.0	-0.107	-1.487	-0.018	-2.717	-0.446
	CI upper	1330.5	1.785		1.456	3.943	1357.7	0.531	-1.008	0.009	-2.124	0.728
NL	coeff.	1.933	-0.217		-0.261			0.874	-0.684	-0.009	-3.265	0.325
	std err	0.765	1.194	omitted	0.198	omitted	omitted	0.189	0.134	0.009	0.195	0.426
	CI lower	0.435	-2.557		-0.650			0.504	-0.946	-0.025	-3.647	-0.511
	CI upper	3.432	2.124		0.127			1.244	-0.422	0.008	-2.884	1.161
CH	coeff.	0.791	0.318		1.571			0.919	-1.024	-0.011	-2.325	0.300
	std err	1.060	0.599	omitted	0.161	omitted	omitted	0.149	0.120	0.008	0.179	0.359
	CI lower	-1.286	-0.856		1.256			0.627	-1.259	-0.026	-2.677	-0.403
	CI upper	2.868	1.491		1.887			1.210	-0.790	0.005	-1.973	1.004

		Income OAF	Income OAM	Income OAF+OAM	One Adult	Health OAM	Health OAF	HHH Migrant	HHH Higher education	HHH age	HH Work intensity	Constant
FR	coeff.	-0.468	-2.037		1.392			1.258	-1.506	-0.016	-3.444	1.605
	std err	0.817	0.532	omitted	0.113	omitted	omitted	0.118	0.110	0.005	0.135	0.226
	CI lower	-2.069	-3.080		1.171			1.027	-1.721	-0.027	-3.708	1.162
	CI upper	1.134	-0.994		1.612			1.488	-1.290	-0.006	-3.179	2.048
BE	coeff.		-13.851		0.815	13.140		1.484	-0.993	-0.012	-3.804	1.084
	std err	omitted	523.415	omitted	0.167	523.416	omitted	0.135	0.156	0.008	0.183	0.365
	CI lower		-1039.725		0.487	-1012.735		1.220	-1.300	-0.028	-4.163	0.369
	CI upper		1012.024		1.144	1039.016		1.749	-0.686	0.003	-3.445	1.799
LU	coeff.	-1.439	-1.755		1.313	0.712	1.697	1.309	-1.664	-0.031	-2.624	1.780
	std err	0.976	1.125	omitted	0.182	1.411	0.935	0.141	0.188	0.008	0.203	0.403
	CI lower	-3.352	-3.961		0.957	-2.052	-0.135	1.033	-2.033	-0.047	-3.022	0.990
	CI upper	0.475	0.450		1.670	3.477	3.529	1.585	-1.295	-0.015	-2.227	2.569
AT	coeff.	2.244	0.685	0.443	0.792	-1.346		1.055	-0.152	-0.027	-2.389	0.849
	std err	0.436	0.417	1.283	0.145	1.243	omitted	0.131	0.145	0.007	0.181	0.317
	CI lower	1.389	-0.133	-2.071	0.507	-3.783		0.797	-0.436	-0.041	-2.743	0.227
	CI upper	3.098	1.503	2.957	1.076	1.091		1.312	0.133	-0.013	-2.035	1.471
IE	coeff.	-2.264	-1.448	-0.332	0.656			0.325	-0.158	0.020	-3.160	-1.206
	std err	1.069	0.844	1.173	0.126	omitted	omitted	0.159	0.118	0.007	0.166	0.284
	CI lower	-4.359	-3.101	-2.632	0.409			0.014	-0.388	0.007	-3.485	-1.763
	CI upper	-0.170	0.206	1.968	0.904			0.636	0.073	0.033	-2.835	-0.649
UK	coeff.	-0.384	-0.666	-1.102	-0.399			0.581	-0.814	0.003	-1.968	-0.156
	std err	0.520	0.691	0.807	0.098	omitted	omitted	0.104	0.094	0.005	0.107	0.197
	CI lower	-1.402	-2.020	-2.685	-0.592			0.378	-0.998	-0.006	-2.178	-0.543
	CI upper	0.635	0.687	0.481	-0.207			0.785	-0.630	0.012	-1.758	0.231
CY	coeff.	0.176	-2.307	-0.407	1.571	1.671	0.060	1.653	-1.636	-0.012	-3.887	1.347
	std err	0.585	1.050	0.936	0.261	0.855	1.087	0.194	0.207	0.008	0.235	0.401
	CI lower	-0.970	-4.366	-2.242	1.059	-0.005	-2.071	1.273	-2.041	-0.029	-4.347	0.561
	CI upper	1.323	-0.248	1.427	2.084	3.347	2.190	2.033	-1.231	0.004	-3.428	2.133
MT	coeff.	-2.260	-1.313		0.104			0.168	-1.757	-0.039	-4.566	3.432
	std err	0.620	0.500	omitted	0.283	omitted	omitted	0.259	0.289	0.008	0.269	0.389
	CI lower	-3.476	-2.293		-0.452			-0.339	-2.324	-0.054	-5.094	2.669
	CI upper	-1.044	-0.332		0.659			0.676	-1.191	-0.025	-4.039	4.196

		Income OAF	Income OAM	Income OAF+OAM	One Adult	Health OAM	Health OAF	HHH Migrant	HHH Higher education	HHH age	HH Work intensity	Constant
IT	coeff.	-0.559	-0.893	-1.318	1.422	0.899	0.517	0.519	-0.918	-0.030	-4.379	2.700
	std err	0.313	0.378	0.517	0.125	0.548	0.410	0.099	0.130	0.005	0.134	0.222
	CI lower	-1.173	-1.633	-2.331	1.177	-0.174	-0.286	0.325	-1.173	-0.039	-4.641	2.266
	CI upper	0.054	-0.152	-0.305	1.667	1.973	1.320	0.713	-0.663	-0.021	-4.116	3.134
ES	coeff.	-1.096	0.171	-1.442	0.739	-0.674	0.571	0.997	-1.123	-0.021	-3.759	2.155
	std err	0.276	0.261	0.397	0.147	0.491	0.350	0.103	0.096	0.005	0.123	0.217
	CI lower	-1.637	-0.340	-2.221	0.451	-1.636	-0.116	0.795	-1.312	-0.029	-3.999	1.729
	CI upper	-0.554	0.683	-0.664	1.028	0.288	1.258	1.198	-0.934	-0.012	-3.519	2.581
GR	coeff.	-0.957	0.091	-0.328	0.100	0.897	-0.195	1.166	-1.630	-0.010	-3.746	1.723
	std err	0.384	0.373	0.480	0.243	0.546	0.499	0.149	0.161	0.007	0.187	0.318
	CI lower	-1.709	-0.640	-1.268	-0.377	-0.173	-1.174	0.873	-1.945	-0.023	-4.114	1.101
	CI upper	-0.204	0.821	0.612	0.577	1.967	0.783	1.458	-1.315	0.003	-3.379	2.346
PT	coeff.	0.088	-0.782	-1.942	0.373	0.829	-0.256	0.321	-1.426	-0.023	-3.815	2.579
	std err	0.351	0.633	0.713	0.181	0.714	0.453	0.198	0.242	0.006	0.169	0.302
	CI lower	-0.601	-2.024	-3.339	0.019	-0.569	-1.144	-0.067	-1.900	-0.035	-4.146	1.986
	CI upper	0.776	0.459	-0.546	0.727	2.228	0.633	0.708	-0.952	-0.011	-3.484	3.171
CZ	coeff.	0.002	-1.947		1.812	1.507		0.946	-1.433	0.005	-4.229	0.171
	std err	0.468	0.889	omitted	0.194	1.713	omitted	0.579	0.271	0.009	0.236	0.381
	CI lower	-0.915	-3.689		1.431	-1.850		-0.189	-1.964	-0.012	-4.693	-0.574
	CI upper	0.918	-0.205		2.193	4.864		2.080	-0.901	0.022	-3.766	0.917
SI	coeff.	-0.432	-1.637	-2.705	2.019	1.875	1.326	0.566	-1.198	-0.031	-5.499	3.529
	std err	0.289	0.506	0.649	0.240	0.785	0.596	0.148	0.172	0.006	0.223	0.321
	CI lower	-0.997	-2.628	-3.978	1.549	0.337	0.158	0.276	-1.536	-0.043	-5.937	2.900
	CI upper	0.134	-0.645	-1.432	2.490	3.413	2.494	0.855	-0.861	-0.020	-5.061	4.158
EE	coeff.	-0.636	-1.577	-0.866	2.151		-0.232	0.591	-0.936	0.013	-3.828	0.556
	std err	0.310	0.557	0.482	0.194	omitted	0.459	0.192	0.139	0.006	0.204	0.263
	CI lower	-1.243	-2.670	-1.811	1.770		-1.132	0.214	-1.207	0.002	-4.228	0.041
	CI upper	-0.029	-0.485	0.080	2.531		0.667	0.968	-0.664	0.025	-3.428	1.072
HU	coeff.	-1.576	-2.262	-3.477	0.616	1.781	-0.037		-2.927	-0.022	-5.011	2.706
	std err	0.421	0.701	1.013	0.182	0.852	0.569	omitted	0.293	0.005	0.166	0.230
	CI lower	-2.402	-3.635	-5.463	0.260	0.110	-1.152		-3.501	-0.032	-5.337	2.255
	CI upper	-0.750	-0.889	-1.491	0.972	3.451	1.077		-2.354	-0.013	-4.685	3.157

		Income OAF	Income OAM	Income OAF+OAM	One Adult	Health OAM	Health OAF	HHH Migrant	HHH Higher education	HHH age	HH Work intensity	Constant
SK	coeff.	-0.938		-1.066	1.504		0.183		-1.417	-0.012	-4.959	2.171
	std err	0.515	omitted	0.840	0.312	omitted	0.636	omitted	0.220	0.008	0.263	0.359
	CI lower	-1.947		-2.712	0.893		-1.063		-1.848	-0.027	-5.474	1.467
	CI upper	0.071		0.581	2.115		1.429		-0.987	0.003	-4.444	2.875
LT	coeff.	-1.276	-1.759	-3.161	1.485	-0.614	0.702	0.140	-1.605	-0.027	-3.586	2.847
	std err	0.414	0.548	1.643	0.209	1.630	0.631	0.409	0.200	0.008	0.247	0.387
	CI lower	-2.088	-2.832	-6.380	1.076	-3.808	-0.535	-0.660	-1.997	-0.042	-4.071	2.089
	CI upper	-0.465	-0.686	0.059	1.894	2.581	1.940	0.941	-1.213	-0.012	-3.101	3.605
LV	coeff.	-0.540	-1.308	-0.928	1.076	-0.307	-0.134	-0.147	-1.533	-0.003	-2.684	0.949
	std err	0.256	0.472	0.440	0.138	0.622	0.330	0.239	0.157	0.006	0.169	0.264
	CI lower	-1.042	-2.233	-1.790	0.804	-1.525	-0.781	-0.616	-1.841	-0.014	-3.015	0.432
	CI upper	-0.038	-0.382	-0.065	1.347	0.911	0.512	0.322	-1.224	0.008	-2.353	1.465
HR	coeff.	-0.429	-1.043	-2.473	0.596	-0.359	1.565	0.655	-0.646	-0.026	-4.224	2.242
	std err	0.290	0.453	0.860	0.370	0.932	0.479	0.181	0.253	0.007	0.232	0.350
	CI lower	-0.998	-1.930	-4.159	-0.130	-2.186	0.626	0.300	-1.142	-0.039	-4.679	1.556
	CI upper	0.140	-0.156	-0.787	1.322	1.468	2.504	1.010	-0.150	-0.012	-3.770	2.928
RO	coeff.	-0.996	-1.766	-2.783	0.773	0.176	0.145		-3.973	-0.003	-2.529	1.589
	std err	0.291	0.411	0.799	0.247	0.581	0.456	omitted	0.716	0.006	0.183	0.300
	CI lower	-1.567	-2.572	-4.348	0.290	-0.963	-0.749		-5.376	-0.014	-2.888	1.002
	CI upper	-0.426	-0.961	-1.217	1.257	1.316	1.040		-2.570	0.008	-2.169	2.176
BG	coeff.	-0.541	-1.522	-2.759	0.357	2.548	0.480		-1.284	0.007	-4.638	1.427
	std err	0.345	0.407	0.678	0.303	0.602	0.454	omitted	0.285	0.006	0.251	0.297
	CI lower	-1.218	-2.320	-4.088	-0.237	1.368	-0.409		-1.843	-0.006	-5.131	0.844
	CI upper	0.136	-0.724	-1.429	0.951	3.728	1.369		-0.724	0.019	-4.146	2.010
PL	coeff.	-0.189	-0.531	-0.068	0.296	0.057	0.469	0.727	-1.742	-0.016	-2.171	1.209
	std err	0.132	0.198	0.206	0.132	0.243	0.180	0.575	0.122	0.003	0.093	0.149
	CI lower	-0.449	-0.919	-0.473	0.037	-0.420	0.116	-0.400	-1.980	-0.022	-2.353	0.917
	CI upper	0.071	-0.142	0.336	0.554	0.534	0.821	1.853	-1.503	-0.010	-1.988	1.502
RS	coeff.	-0.598	-0.742	-1.770	0.751	0.681	0.631		-1.674	-0.011	-3.284	1.739
	std err	0.178	0.192	0.332	0.223	0.270	0.212	omitted	0.199	0.004	0.140	0.213
	CI lower	-0.946	-1.117	-2.420	0.313	0.152	0.215		-2.064	-0.019	-3.559	1.321
	CI upper	-0.250	-0.366	-1.119	1.188	1.209	1.047		-1.284	-0.003	-3.010	2.156

Note: HH=Household; HHH=Head of household; OAM=Old-aged man; OAF=Old-aged woman;

Source: own calculations on EU-SILC 2013.