

# First the children, then the employed: Deprivation and intra-household inequality in Europe

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**Abstract:** Using data from 22 European countries this paper examines intra-household inequality between children and adults. Households allocate resources according to dynamic rules that consider age, gender, kinship and labor market participation. Parents and the unemployed are the most likely to experience deprivation. Extended co-residency is a helpful but limited strategy to reduce child poverty: extended households are more likely to protect children, but also to be poorer. The prioritization of children is nearly universal, with no evidence of an association between income or education and the prioritization of children. Individual deprivation data provides valuable information on intra-household inequality.

**Key words:** intra-household inequality, deprivation, poverty, child poverty

## Introduction

Households do not share resources equally among their members. Both age and gender are relevant to the intra-household allocation of resources. Research on intra-household inequality has tended to focus on couples and found women generally more likely to be disadvantaged (Bennett, 2013; Guio & Bosch, 2020). Evidence with regards to age inequality is comparatively scarce (Bennett remarks that children and young people are often 'invisible' in intra-household studies (2013, p. 590), but growing (Lanau & Fifita, 2020; Main & Bradshaw, 2016). Research in a range of European countries has found that households tend to prioritize children needs over those of adults (Watson et al., 2012; Mood & Jonsson, 2016; Zamora-Sarabia et al., 2019; Main & Bradshaw, 2016).

In one of the few comparative studies exploring intra-household inequality and child deprivation outcomes, Gabos et al., (2011) using EU-SILC 2009 data find adults are more likely to lack specific items (such as new clothes) compared to children in the same household and conclude that ‘in general children are favored ahead of parents’ (Gabos et al., 2011, p. 17), although they exclude child-specific needs and do not explore the factors that shape intra-household allocation. Furthermore, the prioritization of children’s needs is not universal (Brown et al., 2018; Echevarria et al., 2019; Lanau & Fifita, 2020). For example, using expenditure data for Albania (Mangiavacchi & Piccoli, 2011) found that the assumption of equal sharing of resources leads to an under-estimation of child poverty, that is children receive less resources than would be expected. This paper takes advantage of the SILC 2014 ad-hoc deprivation module to provide new evidence on the extent to which intra-household inequality benefits children and the determinants of intra-household inequality. Specifically, it addresses two related questions (1) is there an association between household socio-demographic characteristics and intra-household inequality between children and adults?, and, (2) In households that protect children, who goes without? Specifically, to what extent do gender, age and/or labor market participation affect the odds of sacrificing?

Research on intra-household inequality has relied on one of two approaches: analyzing household expenditure or outcomes (e.g. nutrition, deprivation). Expenditure analysis requires both extensive data collection through diaries and assumptions about the allocation of expenses across household members, with analyses often relying on limited subsets of items e.g. clothing (Bargain & Martinoty, 2019; Mangiavacchi & Piccoli, 2011). The analysis of deprivation is increasingly viewed as valuable in avoiding the limitations of income and expenditure measures (Bedük, 2018; Himmelweit et al., 2013; Main and Bradshaw, 2016; Nolan and Whelan, 2011).

Deprivation measures capture the ability of households and/or individuals to afford items widely identified as necessities (socially perceived needs) (Guio et al., 2012; Mack and Lansley, 1985) and are often viewed as better measures of living standards (Whelan et al., 2002). The analysis of individual deprivation outcomes provides information on prioritization within households, particularly those at the bottom of the income distribution. A further advantage of deprivation measures for the purpose of the present analysis is their ability to capture the impact of non-income resources (e.g. welfare services and facilities) on individual outcomes (Lanau and Fifita, 2020; Main and Bradshaw, 2016; Nolan and Whelan, 2011).

Using data from 22 European countries article provides new evidence on the influence of gender, household composition and labor market participation on the allocation of household resources between children and adults. In doing so it contributes to recent research on the role of inter-generational households in reducing (child) poverty (Karagiannaki & Burchardt, 2020; Verbist et al., 2020) as well as to the literature on gender and intra-household inequality. Furthermore, by identifying those who are more likely to sacrifice their needs for children it allows identifying groups whose vulnerability to poverty and deprivation is under-estimated by (official) household measures.

#### [Background: Intra-household inequality in Europe](#)

The literature suggests that the allocation of resources between household members is shaped by overall economic conditions, the accessibility of particular items, as well as intra-household resources and power dynamics (Lanau & Fifita, 2020; Main, 2018; Bárcena-Martín et al., 2017; Mood & Jonsson, 2016; Bennett, 2013). Individuals living in households with sufficient resources are unlikely to be deprived i.e. provided sufficient resources possible households tend to cover the needs of all their members

(Lanau & Fifita, 2020). Conversely, low income, low educational attainment, a disabling illness, and weak links with the labor market are associated with increased deprivation risk for both households and individuals (Whelan et al. 2002; Guio et al., 2018).

Women have generally less control over resources compared to men. Even when resources are pooled, men have more individualized spending patterns, and have more money available to them, while women tend to limit personal spending particularly where there are children in the household and their needs are more likely to go unmet (Cantillon et al., 2016; Dema Moreno & Diaz Martínez, 2017; Echevarria et al., 2019). The feminist literature has explored how differences in bargaining power between spouses, shape resource allocation (Bennet, 2013). Women's income share is positively associated with their access to resources. An increase in female income share is associated with lower risk of deprivation for women (Cantillon et al., 2016; Karagiannaki & Burchardt, 2020). Intra-household gender inequality is also affected by the division of labor (Karagiannaki & Burchardt, 2020; Vogler, 2005). Couples with a traditional division of labor, where one partner (usually the man) works outside the home while another one (usually the woman) works in the home are more likely to pool their resources and to report shared decision making (Schneebaum & Mader, 2013; Vogler, 2005) although joint pooling may still result in unequal outcomes (Kenney, 2006). Double earning couples are associated with more individualized spending patterns, where partners retain control over their own income (Schneebaum & Mader, 2013). However, individualization may not automatically translate in better outcomes for women as gender inequalities may be reproduced in different ways (Vogler, 2005). The association between employment and intra-household inequality has received comparatively little attention. The existing evidence suggests that employment status

can also alter individual bargaining power and deprivation outcomes. In an analysis of couple's expenditures in Spain following the 2008 crisis, which affected chiefly male dominated sector, Bagain and Marinoty (2019) find a decrease in in the consumption of male items. Cantillon et al. (2016) find unemployed men in Ireland whose spouse works more likely to be deprived, a finding they associate with reluctance to change gender roles. This evidence suggests that labor market position affects bargaining power, although it only refers to couples.

Research on the allocation of resources between children and adults finds that parents tend to prioritize the needs of children, if necessary by going without themselves (Main & Bradshaw, 2016; Mood & Jonsson, 2016; Watson et al., 2012; Zamora-Sarabia et al., 2019). Increased female control over resources has been shown to be positively associated with resources being allocated to children (Chant, 2007; Dema Moreno & Diaz Martínez, 2017; Echevarria et al., 2019; Watson et al., 2012), although some recent studies have found no association between gender of the household head and child deprivation (Lanau & Fifita, 2020; Main & Bradshaw, 2016).

Evidence with regards to grand-parents and other household members is limited, although children are less likely to be deprived in multigenerational households and households with more adults (Echevarria et al., 2019; Lanau and Fifita, 2020). Indeed, inter-generational co-residence has been identified as a key strategy to reduce poverty, particularly in Eastern and Southern Europe (Albertini et al., 2016). Multi-generational cohabitation is more common in socio-economically disadvantaged households (Glaser et al., 2018). The presence of grand-parents and other family members may affect the intra-household allocation of resources through three main mechanisms: by increasing the total resources available, reducing costs and/or by altering the bargaining power of household members. Vesbist et al. (2020) find that co-habitation operates mainly as

solidarity from older to younger generations, as older adults tend to be net contributors to household resources. However, they do not study access to resources within the household. The intra-household allocation of resources alters the effectiveness of inter-generational co-residence in reducing child poverty. If multigenerational households are more likely than two generation households to allocate resources to children, the effect of co-residence on child poverty reduction will increase, while deprivation among the elderly may be higher than expected from household measures. In contrast, if the elderly chiefly keep resources to themselves, the impact of co-residence on both children and old people's experiences of poverty is likely to be modest. In the US, multigenerational co-residence has been identified as an adaptive strategy allowing low income parents to reduce child care costs and increase investment on education child activities (Amorim, 2019). If this pattern is reproduced in Europe, extended households would be more likely to cover children's needs.

One the basis of the evidence discussed above the following hypotheses are considered. Children's needs are more likely to be prioritized in (H1.1) female headed households and (H1.2) extended households and households with few children (H1.3). With regards to individual deprivation, adults in households with children are more likely to experience individual deprivation (H2.1) when they are parents, (H2.2) particularly mothers, and when they are unemployed, working part time or homemakers (H2.3). The remainder of the article is structured as follows the next section describes the data and methods used to answer the research questions and test the hypotheses. The concluding section considers the implications of the findings, limitations of the analysis as well as avenues for future research.

## Methods

### Data and sample

This paper takes advantage of the ad-hoc material deprivation module in the EU-SILC to explore intra-household inequalities between children and adults. The EU-SILC is the reference survey for the analysis of poverty and living conditions in the European Union, and includes both EU and non-EU countries. Countries that do not collect individual information for all household adult members (the register countries Slovenia, Denmark, Netherlands, Sweden and the UK) were excluded from the analysis. Ireland and Malta were excluded due to data quality issues including a high number of missing cases in the deprivation questions. The 2014 module collected deprivation data for children aged 2 to 15. Thus, the analysis is restricted to households with children in this age range (22% of all households). The final sample is composed of 37,917 households with 58,586 children aged 2 to 15 in 22 European countries. Estimates have been calculated using complex samples (Goedemé, 2013).

### Measures and models

Deprivation refers to the inability to afford a range of items and activities that are widely viewed as key conditions for participation in the society to which one belongs (Townsend, 1979). The SILC deprivation module contains two age specific indexes reflecting child and adult specific needs e.g. in terms of nutrition, education and development. Henceforth, 'adult' refers to the population aged 16+ who responded to the adult questionnaire, while 'child' refers to those aged 15 and under. Items in both indexes have previously identified as socially perceived necessities, that is items that no-one should go without (Mack & Lansley, 1985) and found to be valid measures of adult and child deprivation (Guio et al., 2012, 2018). The indices were found to be reliable, with a Chronbach's alpha of 0.843 for the child index and 0.815 for the adult

index. For children the data was collected in the household questionnaire form the adult respondent (usually parents), and reflects whether any child in the household is deprived of a set of 11 items (the full list of items can be consulted in the supplemental materials). The adult index is composed of six items collected in the personal questionnaire. In line with Eurostat official methodology, the deprivation score is the sum of enforced lacks, that is, the unweighted count of items that household members do not have because they cannot afford (Mack and Lansley 1985; Guio et al., 2012). The use of enforced lacks aims to capture the affordability of an item and to remove value judgements (Mack and Lansley, 1985). Aggregate valid, robust and reliable deprivation indices, such as the ones used here, capture the ability of individuals or households to cover socially identified needs and normally participate in society (Guio et al., 2012; Townsend, 1979).

Table 1 presents deprivation rates for children and adults living in households with children. For adults, two sets of results are presented, the second column reflects whether any adult in the household is deprived (i.e. mirroring the data collection for the child index) and the third column shows individual adult deprivations. A third of children are deprived of at least one item. Deprivation decreases as the threshold becomes more severe to 8% with a 5+ threshold. Four in ten adults (41%) are deprived when using the aggregated index, compared to 33% with the individual measure, indicating inequality between adults results in an overestimation of deprivation when using the aggregated index. Yet, in the absence of individual child data the approach is widely used (Guio et al., 2018; Lanau & Fifita, 2020; Main & Bradshaw, 2016) and appropriate for comparison between children and adults. Generally, adults are more likely to be deprived than children.



TABLE 1. Deprivation rates by threshold for adults and children (%)

	Child dep	95%CI	Adults (any)	95%CI	Adults (ind)	95%CI
1+	33	[32-33]	41	[40-42]	33	[32-33]
2+	19	[19-20]	31	[30-32]	23	[23-24]
3+	14	[13-15]	23	[22-24]	16	[15-17]
4+	11	[10-11]	14	[14-15]	10	[9-10]

Source: EU-SILC 2014

To assess the intra-household allocation of resources between children and adults a composite variable is created. Households are classified in four groups according to whether adults and/or children are deprived (see Main and Bradshaw, 2016; Fifita and Lanau, 2020):

- a) Congruous non-deprived: neither children nor adults are deprived
- b) Incongruous protected: adults are deprived, children are not
- c) Incongruous exposed: children are deprived, adults are not
- d) Congruous deprived: both adults and children are deprived

The labels are adapted from Main and Bradshaw (2016) who first applied this approach to UK data. While acknowledging that intra-household inequality between children and adults can result from factors other than household decision-making, the labels are consistent both with evidence on parents sacrificing their needs for their offspring (Elliott & Bowen, 2018; Mood & Jonsson, 2016; Zamora-Sarabia et al., 2019) and with recent literature (e.g. Lanau and Fifita, 2020).

Table 2 shows the proportion of households who are congruous deprived, non-deprived, exposed and protected by deprivation threshold (1+ to 4+). In the majority of households neither children nor adults are deprived. As expected, the proportion of congruous non-deprived households increases as the threshold becomes more severe, reaching 84% when a 4+ threshold is used. The relative size of the exposed and

protected categories confirms that households tend to prioritize children: the protected category is 2 to 5 times bigger than the exposed category. Country analyses show that while the prevalence of child and adult deprivation varies widely, the prioritization of children's needs is apparent in all 22 countries (see supplementary materials). Overall, European households tend to prioritize children's needs over those of adults.

TABLE 2 Intra-household inequality patterns by threshold (% of households with children 2-15)

Threshold	Congruous Deprived		Incongruous Protected		Incongruous Exposed		Congruous Non-deprived	
1+	26	[25-26]	13	[13-14]	5	[5-6]	56	[55-57]
2+	15	[15-16]	14	[13-14]	3	[2-3]	68	[67-69]
3+	10	[10-11]	11	[10-11]	2	[2-3]	77	[76-77]
4+	6	[6-7]	6	[6-7]	3	[3-3]	84	[84-85]

Source: EU-SILC 2014

To understand whether and how household characteristics shape intra-household deprivation inequality in Europe (RQ1) the analysis proceeds in two stages. First, bivariate analysis is conducted to assess the association between socio-demographic characteristics and household deprivation patterns. Then a multinomial regression is used to control for confounding effects between independent variables (n=25023). Demographic variables included are the gender and education of the household head<sup>i</sup>, household composition and the number of children in the household<sup>ii</sup>. Income quintile (calculated at the national level) and number of workers aim at capturing the association between resources and deprivation. Additionally, two variables assess the association between intra-household patterns and additional needs, whether housing costs represent a heavy burden and whether anyone in the household has a limiting illness. Country fixed effects are used to control for unobserved country level characteristics.

To identify the characteristics of adults who sacrifice their needs for children (RQ2) bivariate and multivariate analyses are run on the sub-set of adults living in protected

households (where adults are deprived but children are not n=12.987). The binary logistic regression model is accompanied by average marginal effects with robust standard errors to assess effect sizes (Mood, 2010). In line with the key predictors identified in the literature, the regression model includes gender, age group, parental status, and self-reported labor market activity. Due to the structure of the SILC, child data is only available for co-resident parents. As a consequence, individuals who have children not living in the household are classified as non-parents, the implications of these methodological limitations are considered in the discussion.

The analyses presented below are based on a two item deprivation threshold. A two item threshold allows maximizing sample size and country coverage while avoiding the pitfalls of relying of using a one item threshold (Guio et al., 2012). Since results may be affected by threshold effects, analyses have been run with a more severe 3 item threshold. Regression results are also robust to the use of a logit and a probit specifications. Results can be consulted in supplementary materials any differences are reported in the relevant section.

#### Household socio-demographic characteristics and intra-household inequality

Table 3 shows bivariate statistics for the association between intra-household deprivation patterns and key household characteristics. Female headed households are somewhat more likely to experience congruous deprivation and to be in the protected category than male headed households, but differences are small. Generally, factors associated with an increased risk of deprivation are also associated with increased probability of congruous deprivation. Low educational attainment, living in an extended household, no workers and the two lowest income quintiles are all associated with increased risk of deprivation: in more than 50% of households in these categories either children, adults or both are deprived. Congruous deprivation is highest among

households with no workers (46%), and those in the lowest income quintile in their country (42%), and lowest in households where the head has tertiary education (4%). Interestingly, the size of the exposed category (where children are deprived but adults are not) varies comparatively little (between 1 and 4%). It is also consistently smaller than the protected group, indicating a tendency to protect children across social groups. Since the objective is to identify factors associated with household prioritization, a multinomial regression is conducted in the sub-sample of households where at least one member is deprived. The reference category is incongruous protected households. Positive (negative) values indicate increased (decreased) probability of being in the exposed or congruous deprived category instead of the protected category (Figure 1). Estimates in the left-hand side represent increased probability of being in the protected category, while those in the right-hand side are associated with decreased probability of being in the protected category. The findings are robust to the use of a probit specification, as well as of a 3+ threshold.

The upper half of the figure illustrates the factors associated with an increased probability of being in the congruous deprived category as opposed to protected, and the lower half contrasts the exposed and protected categories. Generally, factors associated with increased risk of deprivation –low educational attainment, the burden of housing costs, limiting illness in the household, no workers- are also associated with increased probability of being in the congruous deprived category.

Female-headed households have a higher probability of being congruous deprived (2+ threshold only). However, there is no evidence that children are more likely to be protected in female-headed households (no significant effect is observed for the exposed category)<sup>iii</sup>. This result is consistent with previous national-level studies (e.g. Main and

Bradshaw, 2016; Lanau and Fifita, 2020). Thus, the gender hypothesis that female-headed households are more likely to protect children is rejected.

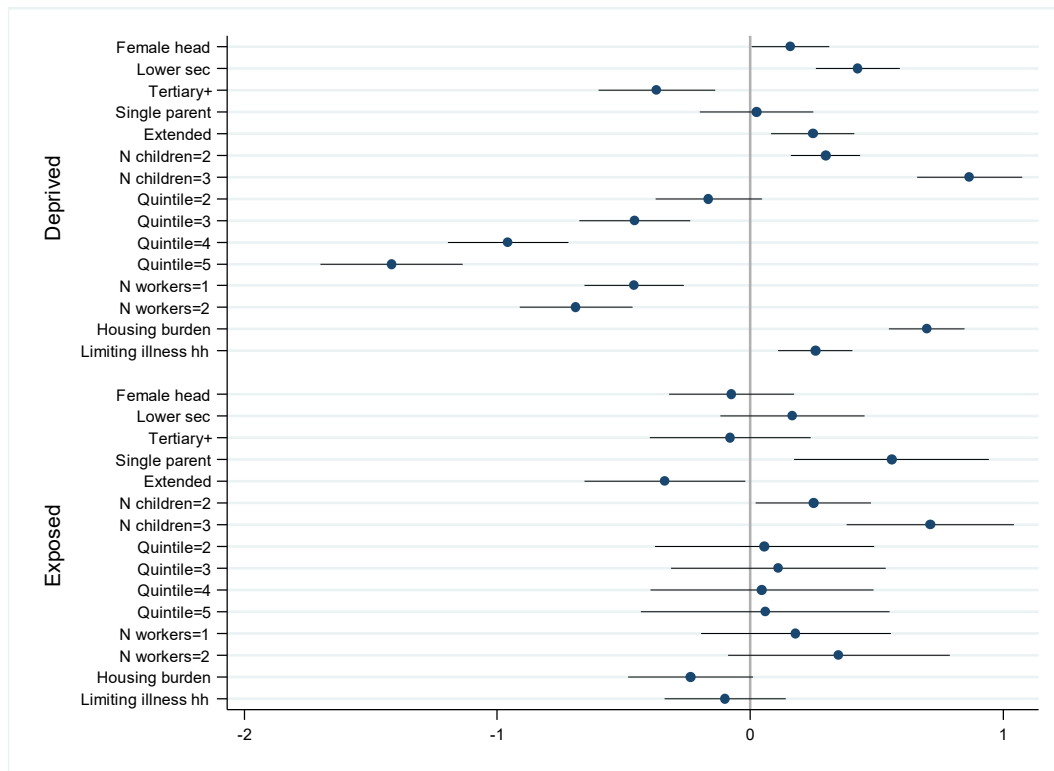
TABLE 3 Intra-household inequality and household characteristics (% households)

	Congruous Deprived	Incongruous Protected	Incongruous Exposed	Congruous Non-dep	Total
Gender head					
Male head	14	13	2	70	100
Female head	18	15	3	64	100
Household composition					
Single parent	21	16	3	60	100
Couple	12	12	2	73	100
Extended	27	20	4	49	100
Number of children					
1	15	15	3	68	100
2	14	13	2	70	100
3+	23	12	3	61	100
Educational attainment head					
Up to Lower Sec	32	19	4	46	100
Upper Sec	16	16	3	66	100
Tertiary+	4	8	1	87	100
Income quintile					
1	42	20	3	36	100
2	31	20	4	45	100
3	20	18	3	59	100
4	9	14	2	74	100
5	4	7	1	88	100
Number of workers					
0	46	22	3	30	100
1	18	17	3	62	100
2+	8	11	2	79	100
Housing heavy burden					
No	7	9	2	82	100
Yes	26	20	3	51	100
Limiting illness (HH)					
No	14	13	3	71	100
Yes	19	17	2	62	100
Total	15	14	3	68	100

Source: EU-SILC 2014. Confidence Intervals available in supplementary materials Table A3.

Household composition is a key predictor of intra-household inequality. As expected, the probability of children being protected is negatively associated with the number of children (H1.3). Households with 3+ children are more likely to be in either the exposed or the congruous deprived categories, compared to the protected category. Equally, extended households are more likely to experience congruous deprivation. In line with the literature, living in an extended household is associated with an increased probability of being protected compared to living in a couple household. In contrast, living in a single-parent household is associated with increased risk of congruous deprivation. Interestingly, living with a single parent is associated with increased risk of being exposed in the regression model although the results are not consistently significant<sup>iv</sup>, and no such effect is found in the bivariate statistics. In any case, cohabitation with extended family appears to be an effective strategy to reduce child deprivation (H1.2). Both the household composition and the number of children effects are consistent with a pure numbers hypothesis where a higher adult/child ratio translates in an increased ability to protect children. In other words, in households where there are few adults and/or many children a reduction in adult consumption may not suffice to cover children's needs (Echevarria et al., 2019; Lanau & Fifita, 2020). Differences in deprivation risk for children in extended, couple and single-parent households may reflect different spending patterns, ability to shift resources within the household and/or access to resources. It is also possible that extended households are genuinely more likely to prioritize children, although additional analyses found no association between the age of the household head and intra-household inequality after controlling by household characteristics.

FIGURE 1 Predictors of intra-household inequality. Multinomial logit (ref: protected)



Source: EU-SILC 2014. Note: Country effects and robustness tests available as supplementary materials.

As expected low resources (low income, no workers, low educational attainment) and high costs (heavy housing burden, 3+ children, limiting illness) are both associated with increased probability of congruous deprivation. Interestingly, once household income and demographic characteristics are controlled for, none of the socio-economic variables has a significant effect on the probability of children being exposed. Thus, there is no significant association between educational attainment or number of workers and the probability of children being exposed. Housing burden and limiting illness in the household both have negative coefficients, suggesting that households with additional costs may be less able to protect children, but again these are not statistically significant.

Finally, a number of Eastern European countries as well as some Southern European countries have an increased risk of being in both the congruous and exposed categories compared to France (the reference category). Such differences are not explained by differences in household composition and may reflect differences in child and family policy, public service provision or intra-household processes. Further research should explore the effect of welfare provision and economic conditions on intra-household inequality.

Overall, socio-economic factors are strong predictors of congruous deprivation, but poor at distinguishing between exposed and protected. Instead, household composition emerges as a key predictor of the probability of children being exposed. Compared to couples, extended households are more likely to be congruous deprived but also more likely to prioritize children, while single parent households are more likely to be in both the congruous deprived and exposed categories. In order to better understand decision making decisions within households the next section considers who goes without in protected households.

#### [Who sacrifices? Deprived adults in households with children](#)

Household composition has emerged as a key predictor of intra-household inequality, with extended households appearing as particularly successful in protecting children from deprivation. In order to further explore the factors that explain this finding this section shifts the attention from children to adults, with the aim of identifying who goes without when households protect children. With that aim, the analyses take advantage of the individual deprivation information and focus on households where adults are deprived but children are not (protected). In the majority of protected households (54% of households, corresponding to 63% of adults) some but not all adults are deprived.



To assess the extent to which personal characteristics and labor market position affect individual risk of deprivation, a set of bivariate and multivariate analyses are run and results reported in Table 4. The first two columns show deprivation rates with confidence intervals. Column three summarizes the results of a binary logistic regression where individual deprivation is the dependent variable (with country and number of adults as control variables). A plus (+) indicates significantly increased probability of individual deprivation and a minus (-) the opposite. Full results are available in supplementary materials.

Unsurprisingly, parents are more likely to go without than non-parents: 78% of mothers are deprived compared to 49% of women without children. Additionally, grand-parents are more likely to go without than older children. Young people under 25 are the least likely to be deprived (40%), followed by the 56+ (60%) compared to 70-74% for the middle groups. Deprivation risk lowest for the younger group (16-25) who are chiefly older siblings, suggesting that intra-household inequality benefits older as well as younger children. There is no evidence of a systematic tendency to protect those with limiting illnesses. The lack of effect may reflect the heterogeneity within the category which includes disabled adults and dependent pensioners, with varying needs and ability to contribute to the household resources.

Table 4 Predictors of individual adult deprivation

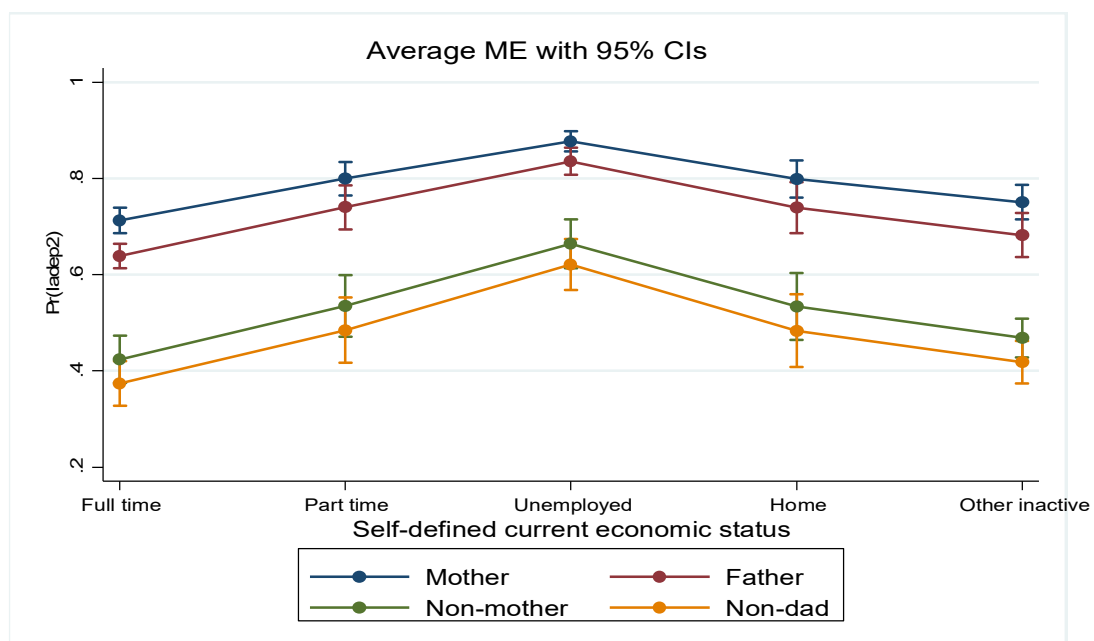
	Deprived (%)	CI (95%)	LR
Mother	78	[76-80]	+
Father (ref)	68	[65-70]	
Woman no children	49	[45-53]	-
Man no children	44	[40-48]	-
16-25	40	[36-43]	-
26-35	71	[68-74]	-
36-45 (ref)	74	[72-76]	
46-56	70	[67-73]	
56+	60	[56-64]	
Full time (ref)	64	[62-66]	
Part time	77	[73-80]	+
Unemployed	81	[78-83]	+
Homemaker	77	[72-81]	+
Other inactive	50	[46-53]	
No illness	66	[64-68]	
Illness	69	[66-71]	
Total	66	[65-68]	

Source: EU-SILC 2014

Consistent with research on sharing between couples (Bennett, 2013; Dema Moreno & Diaz Martínez, 2017; Vogler, 2005), mothers are significantly more likely to sacrifice than fathers: 78% of mothers are deprived compared to 68% of fathers. The difference remains significant in the regression model. In contrast, there are no gender differences among non-parents, suggesting gender inequality in deprivation does not extend to other household members.

Labor market position shapes access to resources: those working part time, as homemakers or unemployed are significantly more likely to experience individual deprivation than either full time workers. The inactive group, composed chiefly of retired and students, but also disabled household members have the lowest deprivation rate (50%). The findings align with the economics literature that has highlighted the association between income share or contribution and individual access to resources in

couples (Bennett, 2013; Karagiannaki & Burchardt, 2020). However, the regression model adds some nuance to the association between labor market participation and individual deprivation. To illustrate the relative size of the effects, average marginal effects are shown below for the interactions between parental and labor market status. Figure 2 shows the marginal effect of parental and labor market status on the probability of individual deprivation. Higher values are associated with higher probability of deprivation. As shown above, parents have consistently higher probability of deprivation than non-parents, regardless of their labor market status. All the rest being equal, mothers working full time are more likely to be deprived than fathers working full time, a finding that may reflect both lower salaries and contributions and/or higher likelihood to sacrifice associated with gender roles (Dema Moreno & Diaz Martínez, 2017).



Interestingly, in the regression model being unemployed significantly increases the probability of deprivation compared to any other group (despite no significant differences in the binary statistics). The increased vulnerability of the unemployed

aligns with previous research linking employment loss with reduced access to household resources (Bargain & Martinoty, 2019; Cantillon et al., 2016). The increased risk of the unemployed compared to home-makers, who tend to have little or no personal income suggests that allocated roles matter when distributing resources.

Cantillón et al. (2016) associate decreased male control over resources following an income loss with an unwillingness to change gender roles. Reduced consumption, they suggest, may be seen as a way to avoid an increased contribution to household chores. The cross-sectional nature of the data does not allow examining these hypotheses in more detail.

Together the results presented in this section point towards sophisticated and dynamic mechanisms of resource allocation affected both by relatively stable personal characteristics, such as gender, and other more changing factors such as labor market position. Gender, parenthood and labor market position influence which adults experience deprivation in households that protect children. The next section examines the implications and limitation of the findings and suggests further avenues for research.

## Conclusion

This paper illustrates the usefulness of material deprivation to understand the allocation of resources within households. The analysis of household deprivation patterns allows examining how gender, age and individual characteristics shape access to household resources and as a consequence individual's ability to cover their needs. Children have specific needs, such as education but also play and socialization, thus children may be deprived even if adults in the household are not (Guio et al., 2018). The use of age specific indexes allows assessing to what extent the needs of different members are met. The analysis of intra-household deprivation patterns has shown that intra-household inequality in Europe tends to benefit children, confirming previous research based on a

limited set of indicators (Gábos et al., 2011) or a single country (Main & Bradshaw, 2016; Mood & Jonsson, 2016). The international literature remarks that intra-household allocation patterns are context specific, with no universal trend (Brown et al., 2018; Lanau & Fifita, 2020). While the study of country variations is outside the scope of this article, it is shown that in all 22 countries studied households largely prioritize children's needs over those of adults.

Previous analyses of intra-household deprivation inequality between children and adults (Main and Bradshaw, Lanau and Fifita, 2020) have been limited by sample size, particularly for the analysis of the small incongruous categories. The use of the SILC pooled dataset has allowed gaining a more nuanced understanding of the predictors of intra-household patterns of inequality with a focus on child and adult deprivation.

While much of the paper focuses on uncovering the factors associated with households protecting children, it is worth highlighting that the majority of deprived children in Europe live in households where both children and adults are deprived (congruous deprived). Such households are poorer (the probability of being congruous deprived decreases markedly with income) and may have limited capacity to shift resources and cover children needs. In line with the findings of the deprivation literature, low resources (low income, no workers, low educational attainment) and high costs (heavy housing burden, 3+ children, limiting illness) are both associated with increased probability of congruous deprivation. Interestingly, no such effects are observed for the exposed category. The results are not consistent with the notion that some groups are less likely to protect children. For instance, there is no evidence that households with low income or educational attainment are more likely to expose children. This is relevant because one of the arguments commonly used against income transfers as a mechanism to reduce child poverty is that households may not prioritize the needs of

children when spending the additional income. The small size of the exposed category across social groups shows that households largely prioritize children and provides support for policies such as child benefits and minimum income guarantees that transfer income to households as opposed to in kind support such as food banks.

Co-residence with extended family, often grand-parents, has been identified as a strategy to reduce child poverty, as older adults tend to contribute resources to households (Amorim, 2019; Verbist et al., 2020). The evidence presented here suggests that co-habitation benefits children: children living in extended households are more likely to be protected. Thus, co-residence with grand-parents has the potential to reduce child poverty. That said, the strategy is only partially successful. Extended households are more likely to protect children than either couple or single parent households, but they are also over-represented in the congruous deprived category. In other words, cohabitation is a useful but often insufficient strategy to protect children from deprivation.

Extending research from couples to households has illuminated some of the complex decision making processes taken by households. Households allocate resources on the basis of sophisticated and dynamic rules that consider age, gender, kinship as well as the labor market position of household members. The prioritization of children's needs extends to young adults who are the least likely to be deprived after children. The key predictor of sacrificing is parenthood. In incongruous protected households, parents are the most likely to go without. Household level measures are likely to under-estimate poverty among parents. However, parents are not the only ones likely to experience deprivation. Cohabitation with young children also has an impact in older adults in multigenerational households, who may experience an increased risk of deprivation.

Unsurprisingly, gender remains a relevant dimension to understand intra-household dynamics. Women (mothers) are more likely to sacrifice their needs than men. More surprisingly in light of the literature that men are more likely to prioritize personal spending (Bennett, 2013; Dema Moreno & Diaz Martínez, 2017) there is no evidence that female headed households are more likely to protect children compared to male headed households.

The household bargaining literature has established an association between income share and access to household resources (Bennett, 2013; Karagiannaki & Burchardt, 2020).

The odds of sacrificing partially fit with the contribution hypothesis: full time workers are less likely to sacrifice their needs compared to part time workers, homemakers and the unemployed. The higher deprivation probability associated with unemployment compared to other low earners such as homemakers and part-time workers suggest that income losses may lead to a redistribution of expenditure for both men and women. The increased odds of sacrificing among the unemployed may reflect a temporary redistribution in household resources or persistent lower access to resources by workers in more vulnerable positions. The scarce longitudinal evidence on intra-household dynamics suggest that entering unemployment may be linked with a reduction in the use of household resources (Bargain & Martinoty, 2019; Cantillon et al., 2016), although it does not allow disentangling temporary and permanent effects. The association between unemployment and intra-household inequality also has wider implications. The intra-household allocation of resources is affected by the economic context (Mood & Jonsson, 2016). In 2014, when the data was collected, European countries, particularly in the South and the East, were ongoing economic recession. For example, Spain had in 2014 the worse unemployment figures in the whole period. It is possible that the findings of this study, including with regards to gender dynamics, are partially defined

by the economic context at the time of the survey. For instance, where job losses concentrated on men, the post-2008 crisis was labelled a ‘mancession’ (Bargain & Martinoty, 2019), gender inequality may temporarily decrease. Repeated data collection would allow identifying such effects and their persistence over time.

The SILC ah-hoc module on material deprivation is a unique resource for the analysis of intra-household inequality. However, the data has some limitations that affect the analyses presented here. Adult deprivation is captured through a relatively small set of indicators. These have been shown to be a reliable measure of deprivation (Guio et al., 2012) and thus appropriate for the purpose of this article. Yet, both quantitative and qualitative research have shown that adults tend to engage in a range of saving behaviors (Main and Bradshaw, 2016; Zamora-Sarabia et al., 2019). The use of a wider range of indicators may allow the identification of patterns of inequality not apparent in the current data. Similarly, the absence of deprivation data for individual children prevents the analysis of inequalities between children. Future modules should collect data on individual children, preferably from children themselves. Indeed, it is increasingly acknowledged that children and adults may have different perceptions of need and need satisfaction (Main, 2018).

The identification of family relations in the EU-SILC also raises some limitations. As is traditional in poverty research, the observation unit is the household. The analysis is limited to parents and children living in the same household and thus does not provide information with regards to non-cohabiting parents. Equally, the label parent does not capture other adults who may have caring responsibilities. Improving the identification of family relations in the survey, including outside the household, would allow a better understanding deprivation among children living with non-parents and reconstituted families.



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<sup>i</sup> The household head is the person responsible for the accommodation, where there are more than one, earnings, age, and finally mention order are used to identify the head.

<sup>ii</sup> Accounting for the age of children in the household did not alter the results.

<sup>iii</sup> Given the strong correlation between gender of the household head and household composition, three models were run. Model1 only gender of the household head Model 2 Only household composition and Model3 both gender of the household head and household composition. The results were robust to model specification, and thus the more complete model was chosen.

<sup>iv</sup> Moreover, further analyses suggest that the effect may be driven by some Eastern European countries with low prevalence of single parent households (Romania, Croatia, Serbia and Slovakia). Single parent becomes insignificant once those countries are excluded.