

ISTITUTO DI ECONOMIA E FINANZA

DIPARTIMENTO DI STUDI
GIURIDICI ED ECONOMICI



SAPIENZA
UNIVERSITÀ DI ROMA

PUBLIC FINANCE RESEARCH PAPERS

POVERTY AND SOCIAL EXCLUSION: WHICH RELATIONSHIP WITH NON-
TRADITIONAL HOUSEHOLD MODELS?

MARIA ALESSANDRA ANTONELLI, ANGELO CASTALDO,
VALERIA DE BONIS, ANDREA SALUSTRI

E-PFRP N. 58

2023

Maria Alessandra Antonelli
Associate professor of Public Finance
Department of Juridical and Economic Studies
Sapienza University of Rome
e-mail: alessandra.antonelli@uniroma1.it

Angelo Castaldo
Associate professor of Public Finance
Department of Juridical and Economic Studies
Sapienza University of Rome
e-mail: angelo.castaldo@uniroma1.it

Valeria De Bonis
Full Professor of Public Finance
Department of Juridical and Economic Studies
Sapienza University of Rome
Parliamentary Budget Office, Rome, Italy
e-mail: valeria.debonis@uniroma1.it

Andrea Salustri
Assistant Professor of Public Finance
Department of Juridical and Economic Studies
Sapienza University of Rome
e-mail: andrea.salustri@uniroma1.it

Please cite as follows:

Antonelli, M. A., Castaldo, A., De Bonis, V., Salustri, A. (2023) "Poverty and social exclusion: which relationship with non-traditional household models?", *Public Finance Research Papers* n. 58, Istituto di Economia e Finanza, DSGE. Sapienza University of Rome, (<http://www.dsge.uniroma1.it/publicazioni/istituto-economia-e-finanza/public-finance-research-papers>)

Maria Alessandra Antonelli, Angelo Castaldo,
Valeria De Bonis, Andrea Salustri

Poverty and social exclusion: which relationship with non-traditional household models?

Abstract

In this paper, we investigate how the changes in households-models affect family poverty in Europe. We ground the analysis on a multidimensional concept of household poverty that includes both relative income poverty and social deprivation that hampers social inclusion. Using a panel of 28 European countries over a fourteen-year period time (2005 to 2018), we implement both panel fixed- and random- effects models, and the system-GMM dynamic panel method. In this framework, we find that, while the break-ups of couples and single-parent families with children positively affects poverty, multigenerational (extended) families play an insurance role against poverty risk. Our results suggest that also family policies represent an effective tool to contrast social exclusion, there effect being more evident in a long-run perspective.

Keywords: household poverty, family models, defamilization policies, system-GMM, Europe.

Introduction

In this paper, we analyse how changes in household models affect poverty patterns and how public policies can represent an effective tool to cope with households' economic distress¹. Our choice stems from recent social trends characterizing modern societies: the increase of the single parenthood choice and of divorces, the declining trend of the number of marriages and the diffusion of extended households with cohabiting young and old generations.

A common finding in empirical analyses is that households with children are more vulnerable to the risk of poverty. Some studies on European countries highlight that, as the size of traditional households (couples) increases, the risk of poverty increases too (Bradshaw and Nieuwenhuis 2021, Berthoud and Iacovou 2006, Lohmann and Crettaz 2018, Nieuwenhuis et al. 2012). This applies to traditional families as the number of children increases. The heterogeneity of coexisting household's models, however, makes the relationship between poverty and household's size complex. When the smaller size is a consequence of single parenthood, several works find a positive correlation with poverty (Esser and Olsen 2018, Kalleberg 2018, Nieuwenhuis and Maldonado 2018a, 2018b, Mueller et al 2020). The relationship between poverty and household's structure becomes even fuzzier, when considering the living arrangement model based on the cohabitation of at least three adults (extended family), often corresponding to three generations. This phenomenon represents a model of intergenerational solidarity (Albertini and Kohli 2012), able to cope with the financial distress of younger generation (Verbist et al. 2020).

¹ Our unit of analysis is the household. However, in the paper we use the terms household and family as synonyms.

Against this background, we examine how *non-traditional* households and defamilization policies relate to household poverty. To this purpose, we use a multidimensional concept of household poverty that includes both relative income poverty and social deprivation that hampers social inclusion. Starting from the consideration that the couple represents the traditional form of parenthood and that the presence of children raises the need for economic and financial resources without providing extra income, thus increasing the poverty risk, all else being equal, we consider two *non-traditional* household types: singles with children and extended households (i.e., with at least three adults) with children.² To enucleate the role of the breaking down of the traditional family arrangement, we also consider the household break-up rate, that is, the difference between the divorce rate and the marriage rate, representing the rate at which each year new single families arise because of the dissolution of traditional family arrangements net of the formation of new ones.

Using Eurostat (EU-SILC) data, the analysis relies on a balanced panel dataset for 28 European countries over the period 2005-2018.

Our analysis introduces three main novelties with respect to previous works. First, while the existing literature mainly explores the poverty risk attached to specific household's types, our work highlights how the spread of new family models affects the overall household poverty risk. In this vein, our findings are also oriented to capture the potential negative spillover effect of the drivers (divorces, separation, single parenthood and financial distress of younger generations) of alternative living arrangements. Second, we add a new research question: is the net impact on poverty of the flow of

² Children poverty is another important issue in the literature, but we do not directly discuss it here.

new single families resulting from the break-up of traditional couples different from the effect of the consolidated stock of single households? To this purpose, we introduce a new variable summarizing the net replacement rate of couples by singles. This information could be useful to assess the timing of public support to households. Finally, the dynamic panel autoregressive analysis allows disentangling the short- and long- run effects of alternative household living arrangements.

Throughout the implementation of a system-GMM dynamic panel data analysis we find that: *i)* the share of single households is positively correlated with the poverty rate; *ii)* the share of extended families is negatively correlated with poverty; *iii)* as expected, defamilization policies represent an effective tool for contrasting households' poverty and social exclusion.

Turning to policy implications, the analysis suggests that in the European context, still based on a traditional household model of two-parents dual earners, single parents - both newly formed and consolidated single households - should be targeted as “new social groups at the risk of poverty”.

Moreover, extended families turn out to represent a living arrangement that effectively tackles the economic distress of households, thus representing a private remedy based on family networks to contrast social exclusion, that is, however, not available to all. In this perspective, our results provide a further indication for a reinforcement of defamilization policies.

The paper is structured as follows. In the next section, we briefly present the changes in family arrangements that have characterised the recent decades and the socio-economic literature analysing their impact on poverty. We then present the variables and the data used in the empirical analysis, followed by a section illustrating the estimation

techniques. We then present the results. The last section contains the main conclusions of our analysis.

Background and Related literature

Since the 1960s, a new attitude towards marriage, childbearing, living arrangements and employment status has been taking hold in Europe, with consequent changes in households' structure and size.

The greater social and economic independence of women has led to an increasing disconnection of the decisions about work, marriage and childbearing (Schoen, et al. 2007, Cancian and Haskin 2014, Antonelli and De Bonis 2021) with a general decline in marriage and fertility rates and an increasing participation of women in the labour market.

As a consequence, over time the traditional household consisting of a married couple with children has become much less widespread, while single parenthood and cohabitating couples have both increased (Proctor and Dalaker 2002; OECD 2011; Iacovou and Skew 2011; Iacovou 2013).

These social changes affected some socio-economic variables such as child outcomes (Thomson et al. 1994; Iacovou 2001; Mackay 2005; Björklund et al. 2007; Menaghan 2009; Zill 2009; Åslund and Grönqvist 2010; LaFave and Thomas 2017; Lee and McLanahan 2015; Chen et al. 2019), income inequality (Lerman 1996; Burtless 1999; Jedrzejczak and Pekasiewicz 2020) and households' poverty. However, the relationship between poverty and household composition is complex and not always clear. Couples are generally less vulnerable to the risk of poverty because of the economies of scales

due to cohabitation and because of the income of the second adults (Cancian and Reed 2001, 2009). Considering couples with children, when the size increases, the risk of poverty increases too, since the amount of resources needed to avoid poverty increases, all else being equal (Bradshaw and Nieuwenhuis 2021). Thus, the smaller size of the household due to fewer children per woman is poverty reducing; instead, divorces, separations, and single parent families are linked to movements into poverty as the number of adults providing income to the household decreases. Because of the complexity of the correlation between poverty and household structure, the related economic literature mainly focuses on specific household types, as families with children (Bradbury and Jäntti 1999; Cappellari and Jenkins 2002; Dwyer 2015; Nieuwenhuis and Maldonado 2018; Thévenon et al. 2018) and young adults (Aassve et al. 2002, 2005, 2006, 2007). Other studies relate the risk of poverty to other elements, such as the ethnic characteristics of the family and/or the household's head gender (Zinn 1989; Smith 2004; Cancian and Reed 2009; Cancian and Haskins 2014; Snyder et al. 2006).

More recent studies (Glaser et al. 2018, Preoteasa et al. 2018, Verbist et al. 2020) focus the attention on the extended household - or multigenerational household - where at least three adults with children cohabit. This is a relatively common type of household and its widespread formation can be related, in recent years, to a coping strategy with respect to the income needs of younger generations, where public support to family care is not developed. Using multivariate techniques, Glaser et al. (2018) find that the extended household is associated with socio-economic disadvantage in a sample of European countries. In these scenarios, the “familialism by default” (Saraceno and Keck 2010) prevails, with financial and informal care taking place within the family network.

However, some studies show that the extended family does not completely ensure members from income risk (Altonji et al. 1992). Using panel data on extended households in the USA, Attanasio et al. (2015) estimate that a substantial portion (around 60%) of income shocks are idiosyncratic within extended family networks, which cannot therefore provide complete financial insurance to their members.

Verbist et al. (2020) show that the presence of the elderly and their income improve the economic well-being of younger generations and children that live within multigenerational households. They also point out that the results are conditional to the equivalence scales adopted and to the classical full resources-sharing assumption within extended households.

Against this background, public policies must provide a response to social changes, to differentiated family members networks and needs within new household models.

Over time, the core of family policies has shifted away from only providing cash benefits and income supplements towards facilitating work–family reconciliation (Neyer 2021), embracing the perspective of the *social investment paradigm* (Bradshaw and Neuwenhuis 2021). The aim of public policy has become providing services that promote skills and employability, to make individuals independent of family relationships.

Esping Andersen (1990) initially highlighted the role of the defamilization policies (childcare facilities, services care for the elderly and the disabled) as an essential tool to contrast households' poverty through a greater women's participation to the labour market, thus reducing the financial dependencies and the care obligations between family members (Israel and Spannagel 2019). A more recent study on 26 European countries (Zagel and Lancker 2022) points out that generous public spending on

childcare also reduces the economic inequality between partnered and single mothers in the life course more than cash benefits or parental leaves policies.

In corporatist welfare regimes (typical of continental European countries), day care and similar family services are conspicuously underdeveloped, and the "subsidiarity principle" serves to emphasize that the State will only interfere when the family's capacity to service its members is exhausted (Esping Andersen 1990 p. 112). Instead, the aim of the social democratic welfare regime, widespread in Northern Europe is to maximize the capacity for individual independence at the same time minimizing the families' poverty risk. In the EU context, defamilization policies have been strengthened in recent decades by setting targets on childcare services (the Barcelona targets, set in 2002 by the European Council), by defining strategies (European Pact for Gender Equality 2011-2020, Europe 2020 Strategy, European Gender Equality Strategy 2020-2025, Europe 2030 Strategy) and by adopting a set of legislative and non-legislative measures promoting the work of the second adult in the households (European Pillar of Social Rights). However, these policies are not uniformly developed within the European Union. Some forms of familism persist and they are often associated with gender inequality and poverty (Saraceno 2015).

Against this scenario, we investigate how the new family arrangements and policies affect households poverty.

Data and Variables

Our panel is composed of annual data for 28 European countries³ over a fourteen-year period time (2005 to 2018). The source of data is the Eurostat database. As we illustrated earlier, we aim at estimating whether the evolution of new social risk groups – namely, new households types as singles with children and extended households with children - and defamilization policies can explain the cross-country heterogeneity in the pattern of household’s poverty and social exclusion, controlling for other socio-economic characteristics.

Our dependent variable is a household-level measure of the Eurostat AROPE rate, representing the share of households that is at risk of poverty or social exclusion. A household (or an individual) is considered at risk of poverty or social exclusion if it is either at risk of poverty, or severely materially and socially deprived or characterized by (or living in a household with) a very low work intensity⁴.

A household is at risk of poverty if its equivalised disposable income is below the poverty line set at 60 per cent of the national median equivalised household income⁵.

The severe material deprivation is not a monetary measure of poverty. Households are considered severely materially deprived if they experience an enforced lack of at least 7 out of 13 deprivation items: capacity to face unexpected expenses, capacity to afford paying for one week annual holiday away from home, capacity to being confronted with

³ The panel is composed by the following 28 countries (groups): Belgium, Bulgaria, Czechia, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, Iceland, United Kingdom.

⁴ People are included only once even if they are in more than one of the cited situations.

⁵ The equivalised disposable income is the total disposable income of a household divided by the number of “equalised adults” calculated as weighted sum of household members. The weights are defined by the following OECD scale: the first adult is weighted 1, the second and each subsequent person aged 14 and over weighs 0,5 and children (defined as members under 14) weigh 0,3 each.

payment arrears (on mortgage or rental payments, utility bills, hire purchase instalments or other loan payments), capacity to afford a meal with meat, chicken, fish or vegetarian equivalent every second day, ability to keep home adequately, have access to a car/van for personal use, replacing worn-out furniture.

Finally, the work intensity of a household is the ratio of the total number of months that all working-age household members (aged 18-64 excluding students aged 18-24 and people who are retired according to their self-defined current economic status or who receive any pension) have worked during the income reference year and the total number of months the same household members theoretically could have worked in the same period. A work intensity indicator less than 20 per cent identifies *a very low work intensity* framework.

Most of the empirical economic literature uses the “at risk of poverty” rate (AROP) for the poverty analysis of households, that is, the share of people with an equivalised disposable income (after social transfer) below 60 % of the national median equivalised disposable income after social transfers. The motivations are basically related to its simple interpretation (Mussida and Parisi 2019) and to its dimension, given that it represents the principal component of the AROPE rate - having the highest share of the three constituting indicators - and is the only indicator, among the three AROPE indicators, with a non decreasing trend in Europe for the period 2005-2018 (Bradshaw and Nieuwenhuis (2021).

However, this indicator presents some drawbacks. First, the reference poverty threshold is set to 60% of median national income and this fact can limit the AROP goodness for international comparison (Mussida and Parisi, 2019). Moreover, when median income falls, as during the 2008 recession, the poverty threshold as well as the at-risk-of-

poverty rate falls, without any improvement in the economic conditions of the poor. Finally, the AROP is probably not a good indicator of command over resources as expenditure, because it does not take into account the capacity to borrow and to use saving and gifts (Bradshaw and Movshuk, 2019).

To overcome these limitations, the European Commission adopts AROPE as the the main indicator to monitor the EU 2030 target on poverty and social exclusion. The European Pillar of Social Rights proposes three EU-level targets to be achieved by 2030, among which one concerns poverty and social exclusion⁶. In particular, the number of people at risk of poverty or social exclusion should be reduced by at least 15 million by 2030, and out of them at least 5 million should be children. Moreover the AROPE rate was also the headline indicator to monitor the EU 2020 strategy poverty target.

Against this background, we use household AROPE as the dependent variable, both because of the implications in terms of family policies and because of the correlation between individual living standards and the household to which individuals belong.

In Europe, the household AROPE has been characterized, on average, by a cyclical pattern in the period 2005-2018. The data highlight a decreasing trend (-12,5%) in pre-crisis years (from 2005 to 2008), an increasing trend from 2008 to 2013 (+ 7,5%) and again a decreasing one until 2018 (-13,7%). Turning to a country specific analysis, the data show - from 2005 to 2018 - a cross-country heterogeneity in the pattern of household's poverty and social exclusion.

⁶ The European Pillar of Social Rights proposes three EU-level targets that have to be achieved by 2030, poverty and social exclusion is one of the targets. The other areas are employment and skills. For details see

<https://www.etf.europa.eu/en/news-and-events/news/2030-social-targets-glance#:~:text=At%20least%2078%25%20of%20people,at%20least%205%20million%20children>.

Substantial declines in household AROPE are recorded in Eastern countries (Bulgaria, Czech Republic, Hungary, Latvia, Lithuania, Poland), while smaller decreases characterize some Mediterranean countries (Cyprus, France, Malta, Portugal), Anglo-Saxon countries (Ireland and UK) and Iceland, Belgium and Slovenia⁷. In the same period, a contained increase of household AROPE is observed in Austria, Germany, Greece, Italy, Norway and Spain, while Luxembourg and Sweden have particularly large increases.⁸ This last empirical evidence seems consistent with the OECD Economic Surveys (2017), pointing out that, although Sweden is still one of the most egalitarian OECD countries, the Gini coefficient of household disposable income has increased more in Sweden than in any other OECD country in the last decades.

In particular, Alm et al (2020) show that in Sweden households' poverty is more concentrated among singles (with and without children). Maldonado and Nieuwenhuis (2018) find the same evidence for 18 OECD countries and the cross sectional analysis in Antonelli and De Bonis (2021) points out a positive correlation between single parenthood and individual poverty for 28 European countries. Consistent with these results, the analysis in Mussida and Parisi (2019) stresses that the burden of poverty is unevenly distributed among several household types, showing that economic recession had a stronger negative effect on singles.

As for the relationship between extended households and poverty, the empirical economic literature for European countries is not very extensive⁹. Recent contributions include Verbist et al. (2020), especially focusing on the economic wellbeing of younger

⁷ See Appendix 1.

⁸ Bradshaw and Nieuwenhuis (2019) find the same empirical evidence for individual AROP indicator.

⁹ Most of the studies on extended households' poverty focuses on labour supply and informal care. For detailed references, see Verbist et al (2020).

generations and children within extended households; Preoteasa et al (2019), analysing financial intergenerational support in Romanian extended households; and Antonelli and De Bonis (2021), finding a positive correlation between the share of extended households and individual poverty and that intergenerational solidarity is an effective tool against poverty.

Within this literature, we test the relationship between the household at-risk-of-poverty or social exclusion rate and the new living arrangements, taking into account the socio-economic variables usually associated with poverty.

Table 1 presents a summary of the variables used in our analysis.

Table 1 – Variables description

Variables	Description	Source	Unit
<i>Household_AROPE</i>	AROPE rate for households (share of households at risk of poverty or social exclusion)	Eurostat “Income and living condition database”	Percentage
<i>Extended Household_Ch</i>	Share of families with three or more adults with dependent children (0-17 or 18-24 if inactive and living with at least one parent)	Eurostat “Income and living condition database”	Percentage
<i>Singles_Ch.</i>	Share of single parent families with at least one dependent child	Eurostat “Income and Living condition database	Percentage
<i>Household Break-up</i>	Crude Divorce rate – Crude Marriage rate	Eurostat “Demography, population stock and balance”	Ratio of the number of divorces in the year to the average population in that year minus the ratio of the number of marriages in the year to the average population in that year. Both values are expressed per 1000 inhabitants
<i>GDP per capita</i>	The indicator is calculated as the ratio of real GDP to the average population of a specific year. GDP measures the value of total final output of goods and services produced by an economy within a certain period of time	Eurostat	Euro

<i>Secondary Edu.</i>	Share of the population with at secondary education attainment	Eurostat	Percentage
<i>Unemployment</i>	Share of the population of persons from 15 to 74 years of age (16 to 74 years in ES, IT and the UK) unemployed	Eurostat	Percentage
<i>Gini Index</i>	Gini coefficient of equivalised disposable income	Eurostat	Index
<i>Defamilization</i>	The indicator is calculated as the ratio of total family benefits per capita (cash and in kind) to the real GDP per capita	Eurostat	Index

Beside the share of extended families and of singles with children, widely used in the literature, we use another household related variable, the household break-up rate. This is an indicator calculated as the difference between divorces rate and marriages rate, representing the new single families formed each year minus the new couples. Differently from the crude divorce rate, it can be considered as a sort of *net replacement rate* of couples by singles. We introduce this variable instead of the crude divorce rate for two main reasons. First, this indicator enables a cross-country comparison, considering the relative weight of family break-ups compared to the *social attitude* to the formation of traditional families characterizing each country. Second, this alternative variable allows comparing the effects on poverty of a flow variable with respect to a stock variable represented by the overall share of single with children.¹⁰

The policy variable is represented by a defamilization index, calculated as the ratio of family benefits (cash and in kind) out of GDP, that reveals the size of public intervention to support the family¹¹.

Our analysis also includes socio-economic covariates as controls; this allows

¹⁰ Divorces and marriages refers to families with and without children.

¹¹ Israel and Spannagel (2019) use defamilization index composed by this measure, representing the size of public intervention. Moreover, they also consider an alternative index measuring the coverage of the defamilization policy, as a percentage of beneficiary households.

minimising the risk of obtaining biased estimation results due to the omission of main macro-economic context variables. These covariates are real GDP per capita, unemployment, secondary education, and the Gini index¹².

Table 2 presents descriptive statistics of our dataset.

Table 2 - Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Hous_AROPE	392	22.881	7.791	11	61.4
Extended Fam_Ch.	392	5.901	3.601	.9	17.4
Singles_Ch.	392	4.35	1.552	1.3	9.3
Household Break-up	392	2.714	1.156	.4	6.2
GDP PC	392	26,908.81	11,467.17	7,900	81,000
Secondary Edu.	392	46.395	12.3	16.3	72.2
Unemployment	392	8.314	4.293	2	27.5
Gini Index	392	29.357	3.985	20.9	40.8
Defamilization	392	.008	.009	0	.048

Identification strategy

In order to investigate the relevance of the role of households' composition and defamilization policies on households' poverty while controlling for other socio-economic characteristics, we estimate the following equation:

$$Hous_AROPE_{it} = \beta_0 + \beta_1 Ext_Fam_ch_{it} + \beta_2 Break_up + \beta_3 Defam_{it} + \beta_4 X_{it} + T_t + \epsilon_{it} \quad (1)$$

where subscripts i and t represent, respectively, the country and the time period, $Hous_AROPE$ is the share of households at risk of poverty or social exclusion, Ext_Fam is

¹² For a detailed variable description, see table 1.

the share of population with three or more adults with dependent children, *Break_up* is the value of the ratio of the number of divorces in the year to the average population in that year minus the ratio of the number of marriages in the previous year to the average population, *Defam* is the ratio of total family benefits per capita to real GDP per capita, X is a set of socio-economic country characteristics, and ε is the time-varying error term which stands for a well-behaved error term distributed IID $(0, \sigma^2)$. However, given the results of the Breusch-Pagan test for heteroskedasticity, we use the Eicker-White (i.e., robust) standard errors.

We start by estimating eq. (1) using panel fixed (FE) and random (RE) effects models, and rely on robust standard errors. To choose the most efficient estimation strategy, we perform both the Breusch-Pagan Lagrange Multiplier Test (1980) and the Hausman Test (1978). In particular, the Hausman test reveals that the random effect estimation model can be considered appropriate ($\text{Pr.} > \chi^2 = 0.11$)

The empirical and theoretical literature on social exclusion takes into account the possibility of poverty hysteresis, inertia or traps. Past levels of poverty may affect current levels of poverty. For these reasons, the relevance of a dynamic path associated to our dependent variable *Hous_AROPE* suggests that OLS coefficients could be inconsistent due to the correlation between $Hous_ARPE_{i,t-1}$ and the error term, even when relying on a first difference system. For this reason, in order to corroborate previous results, we also provide a dynamic panel data estimate (Arellano and Bond, 1991; Arellano and Bover, 1995; Blundell and Bond, 1998) as a robustness check, which allows offering additional assurance to our OLS estimates through the implementation of an auto-regressive approach. In economic terms, adding dynamics to our analysis makes the estimate

conditional on the entire history and transition over time of the model.

Following Blundell and Bond (1998), when the number of the panel units is larger than the number of time periods, the system-GMM estimator (Arellano and Bover, 1995) is more efficient (Baltagi, 2005) than the difference-GMM estimator (Arellano and Bond, 1991). This argument provides a first suggestion that in our case (with $N=28$ and $T=15$) the application of the system-GMM has to be preferred.

Therefore, to deal with the dynamic and simultaneity problems, we estimate a more efficient model of the households at risk of poverty rate, implementing a system-GMM (Arellano and Bond, 1991; Arellano and Bover, 1995):

$$Hous_AROPE_{it} = \beta_0 + \beta_1 Hous_AROPE_{it-1} + \beta_2 Ext_{Famch_{it}} + \beta_3 Break_up + \beta_4 Defam_{it} + \beta_4 X_{it} + T_t + \varepsilon_{it} \quad (2)$$

where subscripts i and t represent the country and the time period, respectively. The dependent variable is still $Hous_AROPE$, and among the explanatory variables, in addition to the previous covariates in eq. (1), we find the lagged values of the dependent variable ($Hous_AROPE_{i,t-1}$), included into the model in order to identify the persistency in the dynamics of poverty; ε_{it} stands for a well-behaved error term IID distributed $(0, \sigma^2)$. To test the validity of the instruments included in the dynamic panel analysis, we rely on the Sargan (1958) test of over-identifying restrictions to examine the consistency of the instruments and on the Arellano and Bond (1991) test for the serial correlation of the disturbances up to the second order.

Estimation results

We start by presenting, in Table 3, the results of the pooled OLS (Mod. 1), panel fixed (FE) (Mod. 2) and random (RE) (Mod. 3) effects model estimations of eq. (1). Despite the different econometric models implemented, the magnitude of the estimated

parameters remain similar and the sign of the effect holds across the different models specification.

In particular, this first set of estimates reveals that the share of extended families with children exerts a positive effect on households' poverty and social exclusion. This finding seems to confirm, as in Preoteasa et al (2019), that the extended family is resorted to when severe economic hardship of the younger generation occurs.

Moreover, the share of singles with children exhibits a positive and statistically significant effect on our dependent variable. This relationship holds across the models (Mod. 1, 2 and 3) and confirms that the increase in the share significantly worsens the level of households' poverty. This finding is coherent with the idea that break-ups determine deep changes of great economic relevance. The results confirm the hypothesis that break-ups impede the possibility of pooling income as during marriages (Heimdal and Houseknecht, 2003, Zagel and Lancker 2022), enhancing the risk of households poverty.

Turning to socio-economic controls, as for GDP per capita, the results confirm previous literature findings (Dollar et al. 2016): the share of households in poverty decreases as per capita income increases. Moreover, as for educational attainments, the results confirm the inverse correlation with the households at risk of poverty share (Barham et al. 1995; Hofmarcher 2019; Israel and Spannagel 2019); that is to say, the non-attainment of secondary education achievements is found to be positively correlated to households' poverty. As expected, education turns out to be a very important factor in order to reduce the risk of deprivation. As far as unemployment is concerned, the results across the models, as expected, confirm the direct relationship with our dependent variable (among many, see Saunders 2002).

Finally, as for the effect of defamilization policies, even though at a 10% level of statistical significance (Mod. 2 and 3), the higher the extent of defamilization policies (measured as the ratio of in-kind benefits over GDP) in a given country, the lower the share of households at risk of poverty. The result is similar to that obtained in Zigel and Lancker (2022) and in Israel and Spannagel (2019).¹³ This finding seems to corroborate the hypothesis that defamilization policies, by pooling the social costs of family and care obligations, are an effective tool in lowering the width of households' deprivation. With respect to the choice between Mod. 2 and Mod. 3, the result of the Hausman test ($Pr.>\chi^2 = 0.11$) indicates that the random effect estimation model is the appropriate one.

Table 3 – Estimation results: OLS, panel FE and RE

<i>Variables</i>	Mod. 1	Mod.2	Mod.3	Mod.4	Mod.5
	OLS	FE	RE	FE	RE
	HOUS_AROPE	HOUS_AROPE	HOUS_AROPE	HOUS_AROPE	HOUS_AROPE
<i>Extended Fam_Ch.</i>	0.833*** (0.109)	0.646* (0.351)	0.640* (0.368)	0.911* (0.448)	0.874* (0.452)
<i>Household Break-up</i>	1.140*** (0.282)	1.340*** (0.449)	1.315*** (0.383)		
<i>Single_Ch</i>				6.002** (2.660)	4.674* (2.749)
<i>Defamilization</i>	-147.013*** (38.154)	-529.300* (295.112)	-387.528* (200.157)	-482.534* (276.424)	-274.946* (141.271)
<i>GDP_PC</i>	-0.239*** (0.032)	-0.157* (0.079)	-0.181** (0.072)	-0.200** (0.068)	-0.184*** (0.073)
<i>Secondary Edu.</i>	-0.096*** (0.028)	-0.290 (0.198)	-0.221* (0.131)	-0.247 (0.166)	-0.120 (0.089)
<i>Unemployment</i>	0.100	0.220**	0.193**		

¹³ Israel and Spannagel (2019) obtain the result when considering childcare services and the target group of families with children between 3 and 6 years of age.

	(0.072)	(0.092)	(0.083)		
<i>Gini</i>				0.382	0.487**
				(0.235)	(0.214)
<i>Cons.</i>	33.934***	42.602***	39.138***	18.056	9.998
	(2.672)	(11.250)	(8.065)	(12.085)	(9.150)
F-stat o Wald χ^2	52.20***	4.90***	32.08***	3.27***	47.48***
R ²	0.47	0.29	0.35	0.40	0.54
Groups	28	28	28	28	28
Obs.	392	392	392	392	392

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

With the two-fold aim of providing an alternative variable and perform a sensitivity analysis, we then adopt two alternative model specifications (Mod. 4 and 5). In particular, we substitute the share of singles with children (a stock variable) with the break-up rate (a flow variable) and the unemployment rate with the Gini index. The estimation results are provided in Table 3.

The share of households' break-ups exhibits a positive and statistically significant effect on our dependent variable. This relationship holds across the models (Mod. 1, 2 and 3), and confirms that the increase in the break-up rate of traditional families, throughout the increase in the number of non-traditional households structures, significantly worsens the level of households poverty. This finding is coherent with the idea that break-ups determine deep changes of great economic relevance and confirms the hypothesis that they create a barrier to the possibility of pooling income during marriages (Heimdal and Houseknecht, 2003, Zagel and Lancker 2022), enhancing the risk of households poverty.

As for the Gini index, the relationship is significantly positive in the RE model

specification¹⁴.

With respect to our first set of estimations, the overall results on our strategic family composition determinants and on defamilization policies also in these cases are confirmed.

We also tackle the problem of the possible inconsistency of the OLS coefficients due to the persistency in the dynamics of the dependent variable arising from poverty hysteresis, inertia or traps. For this reason, as a robustness check with respect to our findings, in Table 4 we present the results of the system-GMM dynamic panel data estimate, which allows providing consistency to our estimates throughout the implementation of an auto-regressive approach. We also distinguish between the short- and long-run effects on poverty of the variables under investigation.

Table 4 – Robustness checks: system-GMM

<i>Variables</i>	Mod. 6	Mod. 7
	GMM	GMM
	HOUS_AROPE	HOUS_AROPE
<i>L. Hous_Arope</i>	0.661*** (0.092)	0.709*** (0.056)
<i>Extended Fam_Ch.</i>	-0.639*** (0.108)	-0.973*** (0.163)
<i>Household Break-up</i>	-0.817*** (0.298)	
<i>Singles_Ch.</i>		1.947*** (0.309)
<i>Defamilization</i>	-121.669* (73.356)	-107.362** (54.037)

¹⁴ For the relationship between poverty and income distribution, see, among others, Besley and Burgess (2003).

<i>GDP_PC</i>	-0.282*** (0.055)	-0.539*** (0.056)
<i>Secondary Edu.</i>	-0.356*** (0.064)	-0.545*** (0.065)
<i>Unemployment</i>	0.087*** (0.028)	
<i>Gini index</i>		0.080 (0.145)
<i>Cons.</i>	36.012*** (4.784)	41.924*** (5.704)
<hr/> <i>Long term coefficients:</i>		
<i>Extended Fam_Ch.</i>	-2.419** (0.517)	-3.343*** (1.057)
<i>Household Break-up</i>	3.091*** (1.146)	
<i>Singles_Ch.</i>		6.689*** (1.856)
<i>Defamilization</i>	460.578* (269.822)	-368.954* (212.202)
Wald χ^2	330.01***	135.86***
N. of Instruments.	26	26
AR(1) Pr > z	0.027	0.000
AR(2) Pr > z	0.481	0.989
Hansen test	19.56	8.45
Groups	28	28
Obs.	364	364

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

The main difference with the results of the previous specifications is the effect of the share of extended families that turns from positive to negative, once persistency in the dynamics of the dependent variable is taken into account. The result is in line with the

hypothesis of the insurance role of the extended family proposed by the strand of the literature as recalled above. This evidence is furtherly reinforced when considering the comparison between long- and short-run effects. The long-run effect, that considers the steady state effect, once the whole adjustment has taken place, is stronger than the short-run one: in particular, the long run coefficient of extended family is more than three times larger than the short run one.

As for the break-up rate in the dynamic set-up, the short-run coefficient turns negative, while the long-run one is positive and almost four times larger than the static model. To interpret this, one should consider that the effect of the dissolution of already existing families, net of that deriving from the creation of new ones, takes place through the separation/pooling of resources and the loss/creation of economies of scale. Presumably, these factors take some time before becoming effective. Therefore, we consider the long-run coefficients as more relevant for understanding the role of the family break-up rate on family poverty.

Conclusions

Changes in family arrangements and parenthood models deliver several socio-economic effects. In this paper, we have analysed how new family households and defamilization policies relate to material deprivation. We have found that the break-up of existing traditional families (couples) and the increase in the share of single with children is positively related to family poverty, the result confirming that single with children are a group at risk of poverty. As argued in the existing literature, this is an effect of the impossibility of pooling resources with another earning adult and of exploiting

economies of scale. We find that the extended family arrangement can help tackling these problems. However, family networks are not available to all. Defamilisation policies can thus represent a way to tackle poverty: we find that their size is negatively related to the AROPE index, with a greater effect in the long-run than in the short-run. This finding suggests the appropriateness of structural family policies in order to effectively contrast household poverty.

References

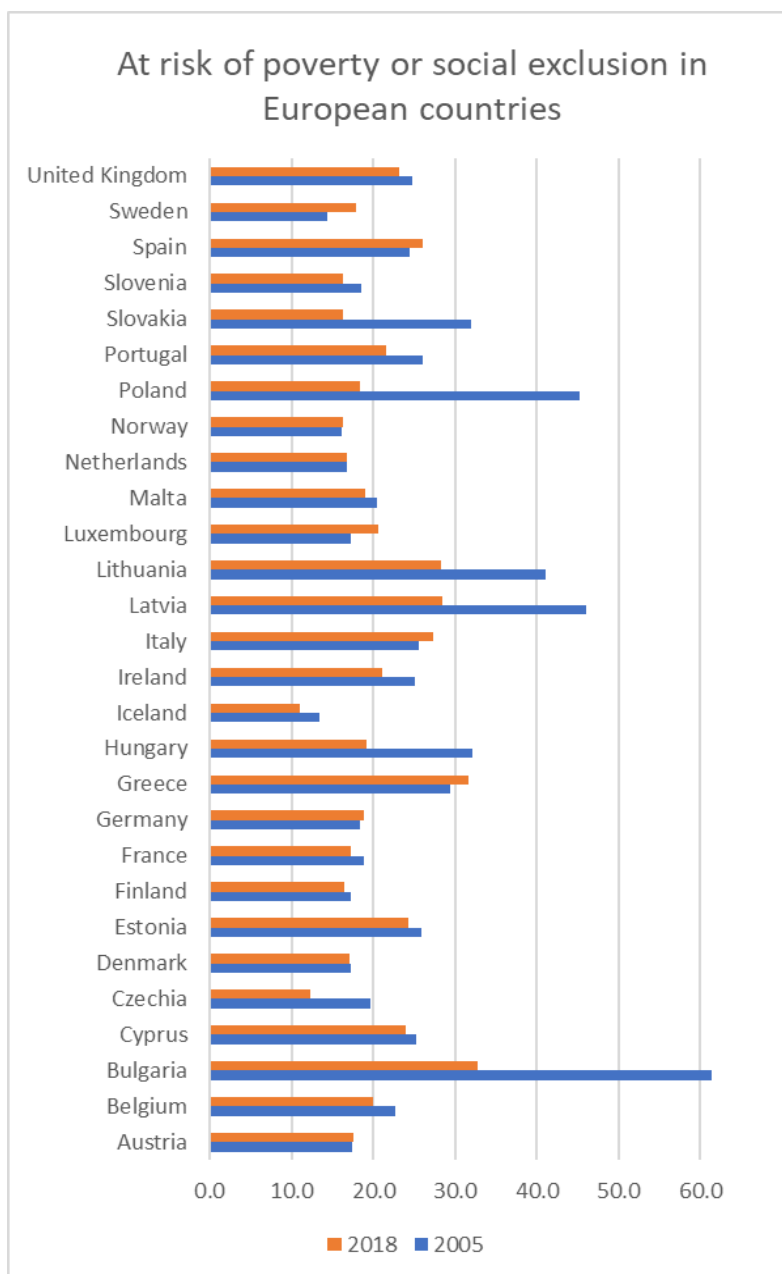
- Aassve, A., Billari, F. C., Mazzucco, S., Ongaro, F. (2002). Leaving home: a comparative analysis of ECHP data, in *Journal of European Social Policy*, 12(4), 259–275.
- Aassve, A., Davia, M A., Iacovou, M. (2005). Does leaving home make you poor? Evidence from 13 European countries, ISER Working Paper Series, No. 2005-24, University of Essex, Institute for Social and Economic Research (ISER), Colchester.
- Aassve, A., Iacovou, M. Mencarini, L. (2006). Youth poverty and transition to adulthood in Europe, in *Demographic Research*, 15, 21-50.
- Aassve, A., Davia, M. A., Iacovou, M., Mazzucco, S. (2007). Does Leaving Home Make You Poor? Evidence from 13 European Countries, in *European Journal of Population*, 23, 315- 338.
- Albertini, M. and Kohli, M. (2012). The generational conflict in the family: an analysis of transfer regimes in Europe, *European Sociological Review*, 17, 1–13.
- Altonji, J., Hayashi, F., and Kotlikoff, L. (1992). Is the Extended Family Altruistically Linked? Direct Tests Using Micro Data, in *American Economic Review*, 82(5), 1177–98.
- Arellano, M., and Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies*, 58(2), 277-297.
- Arellano, M., and Bover, O. (1995). Another Look at the Instrumental Variable Estimation of Error-Components Models. *Journal of Econometrics*, 68(1), 29-51.
- Antonelli, M. A., and De Bonis, V. (2021). Economic Poverty: Does the Break-Up of Families Matter?, in *Social Sciences*,10(6), 1-20.
- Åslund, O. and Grönqvist, H. (2010). Family size and child outcomes: Is there really no trade-off?, in *Labour Economics*, 17, 130-139.
- Baltagi, B.H. (2005). *Econometric Analysis of Panel Data*, John Wiley and Sons, Chichester.
- Besley, T. and Burgess, R. (2003). Halving global poverty, in *Journal of Economic Perspectives*, 17(3), 3-22.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models, in *Journal of Econometrics*, 87(1), 115-143.

- Björklund, A., Ginther, D. K. and Sundström, M. (2007). Family structure and child outcomes in the USA and Sweden, in *Journal of Population Economics* vol. 20, pp. 183-201.
- Bradbury, B. and Jäntti, M. (1999). *Child Poverty across Industrialized Nations*, Innocenti Occasional Papers, Economic and Social Policy Series, no. 71. Florence: UNICEF International Child Development Centre.
- Bradshaw J. and Movshuk, O. (2019). *Measures of extreme poverty applied in the European Union*, in H. P. Gaisbauer, G. Schweiger and C. Sedmak (eds.), *Absolute Poverty in Europe. Interdisciplinary perspectives of a hidden phenomenon*, ch. 3, Policy Press.
- Bradshaw, J. and Nieuwenhuis, R. (2021). *Poverty and the Family in Europe*, in N. F. Schneider and M. Kreyenfeld (eds.), *Research Handbook of the Sociology of the Family*, ch. 25, Edward Elgar publishing.
- Burtless, G. (1999). Effects of growing wage disparities and changing family composition on the U.S. income distribution, in *European Economic Review*, 43, 853-865.
- Cancian, M. and Reed, D. (2001). *Changes in family structure: Implications for poverty and related policy*, in Danziger S. and Haveman R. H. (eds) *Understanding Poverty*, Harvard University Press
- Cancian, M. and Reed, D. (2009). *Family Structure, Childbearing, and Parental Employment: Implications for the Level and Trend in Poverty*, in Cancian M. and Danziger S. (eds) *Changing Poverty, Changing Policies*, Russel Sage Foundation, New York, ch 4.
- Cancian, M. and Haskins, R. (2014). Changes in Family Composition: Implications for Income, Poverty, and Public Policy, in *The Annals of the American Academy of Political and Social Science*, 654(1), 31-47.
- Cappellari, L. and Jenkins, S. P. (2002). Who Stays Poor? Who Becomes Poor? Evidence from the British Household Panel Survey, in *The Economic Journal* vol. 112, pp.60-67.
- Chen, S., H., Chen, Y., Liu, J. (2019). The Impact of Family Composition on Educational Achievement, in *Human Resources*, 4, 122-170.
- Dwyer, M. (2015). Sole Parents in Poverty-it's time to update the policy paradigm, in *Policy Quarterly*, 11(1), 19-24.
- Esping Andersen, G. (1990). The Three Political Economies of the Welfare State, in *International Journal of Sociology*, 20(3), 92-123.
- Glaser, K., Stuchbury, R., Price, D., Di Gessa, G., Ribe, E. and Tinke, A. (2018). Trends in the prevalence of grandparents living with grandchild(ren) in selected European countries and the United States, in *European Journal of Ageing*, 15, 237-250.
- Iacovou, M. (2001). *Family composition and children's educational outcomes*, ISER Working Paper Series, No. 2001-12, University of Essex, Institute for Social and Economic Research (ISER), Colchester available at <https://ideas.repec.org/p/ese/iserwp/2001-12.html>
- Iacovou, M. and Skew, A. J. (2011). Household composition across the new Europe: Where do the new Member States fit in?, in *Demographic Research*, 25, 465-490.
- Iacovou, M. (2013). *Household composition, poverty and hardship across Europe*, Eurostat Statistical Working Paper available at <https://ec.europa.eu/eurostat/web/main/publications/statistical-working-papers>.

- Israel, S. and Spannagel, D. (2019). Material Deprivation in the EU: A multi-level analysis on the influence of decommodification and defamilization policies, in *Acta Sociologica*, 62(2), 152-173.
- Jędrzejczak, A. and Pekasiewicz, D. (2020). Changes in Income Distribution for Different Family Types in Poland, in *International Advances in Economic Research*, vol. 26, pp. 135-146.
- LaFave, D. and Thomas, D. (2017). Extended families and child well-being, in *Journal of Development Economics*, 126, 52-65.
- Lee, D. and McLanahan, S. (2015). Family Structure Transitions and Child Development: Instability, Selection, and Population Heterogeneity, in *American Sociological Review*, 80(4), 738-763.
- Lerman, R. I. (1996). The impact of the Changing US Family Structure on Child Poverty and Income Inequality, in *Economica*, 63(250)(Supplement), 119-139.
- Lohmann H. and Crettaz E. (2018). Explaining cross-country differences in in-work poverty, in H. Lohmann and I. Marx (eds.), *Handbook on In-Work Poverty*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing, pp. 50-69.
- Mackay, R. (2005). The impact of family structure and family change on child outcomes: a personal reading of the research literature, in *Social Policy Journal of New Zealand*, 24, 111-133.
- Maldonado, L. C. and Nieuwenhuis, R. (2015). Family policies and single parent poverty in 18 OECD countries, 1978–2008, in *Community, Work and Family*, 18 (4), 395–415.
- Menaghan, E. G. (2009). Family Composition, Family Interaction, and Children's Academic and Behavior Problems: Interpreting the Data, in Booth A. and Dunn J. F. (eds) *Family-School links. How do they affect educational outcomes?*, Routledge, New York.
- Mussida, C. and Parisi, M.L. (2019). Risk of poverty in Southern Europe, in *Metroeconomica*, 71, 294-315.
- Neyer, G. (2021). *Welfare state regimes, family policies, and family behaviour*, in N. F. Schneider and M. Kreyenfeld (eds.), *Research Handbook of the Sociology of the Family*, ch. 2, Edward Elgar publishing.
- Nieuwenhuis, R. and Maldonado, L. C. (2018 a). Single-parent families and in-work poverty, in H. Lohmann and I. Marx (eds.), *Handbook on In-Work Poverty*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing, pp. 171-92.
- Nieuwenhuis, R. and Maldonado, L. C. (2018 b). *The Triple Bind of Single-Parent Families: Resources, Employment and Policies to Improve Wellbeing*, Bristol: Policy Press
- OECD (2011). Families are changing, in *Doing Better for Families*, Chapter 1, pp. 17-53 available at <https://www.oecd.org/social/soc/doingbetterforfamilies.htm>
- OECD (2017). Income, wealth and equal opportunities in Sweden, in *OECD Economic Surveys- Sweden*, Chapter 1, available at https://www.oecd-ilibrary.org/sites/eco_surveys-swe-2017-5-en/index.html?itemId=/content/component/eco_surveys-swe-2017-5-en#:~:text=Inequality%20has%20increased%20more%20in,in%20the%20OECD%20median%20country

- Preoteasa, A.M., Vlase, I. and Tufă, L.A. (2018). Intergenerational support as a reaction to socioeconomic crisis: alteration of solidarity within precarious Romanian households, in *European Societies*, 20(1), 111-130.
- Proctor, B.D. and Dalaker, J. (2002). *Poverty in the United States: 2001*, U.S. Census Bureau, Current Population Reports, P60-219, U.S. Government Printing Office, Washington, DC available at <https://www.census.gov/library/publications/2003/demo/p60-222.html>
- Ringen, S. (1991). Households, standard of living, and inequality, in *Review of Income and Wealth*, 37 (1), 1-13.
- Saraceno, C., and Keck, W. (2010). Can we identify intergenerational policy regimes in Europe?, in *European Societies*, vol.12, n.5, pp. 675-696.
- Saraceno, C. (2015). Varieties of familialism: Comparing four southern European and East Asian welfare regimes, in *Journal of European Social Policy*, 26(4), 314-326.
- Schoen, R., Landale, N.S. and Daniels K. (2007). Family transitions in young adulthood, in *Demography*, 44, 807-820.
- Smith, J.P. (2004). Poverty and the Family, in G. D. Sandefur and M. Tienda (eds.), *Divided Opportunities. Minorities, Poverty and Social Policy*, Plenum Press, New York and London, ch.6.
- Snyder, A.R., McLaughlin, D.K., and Findeis, J. (2006). Household Composition and Poverty among Female Headed Households with Children: Differences by Race and Residence, in *Rural Sociology*, 71(4), 597-624.
- Thévenon, O., Manfredi, T., Govind, Y., Klauzner, I. (2018). *Child Poverty in the OECD: Trends, determinants and policies to tackle it*, in OECD Social, Employment and Migration Working Papers, No. 218, OECD Publishing, Paris, <https://doi.org/10.1787/c69de229-en>.
- Thomson, E., Hanson, T. L., and Mc Lanahan, S.S. (1994). Family Structure and Child Well-Being: Economic Resources vs. Parental Behaviors, in *Social Forces*, 73(1), 221-242.
- Verbist, G., Diris, R. and Vandenbroucke (2020). Solidarity between Generations in Extended Families: Old-Age Income as a Way Out of Child Poverty?, in *European Sociological Review*, 36(2), 317-332.
- Zill, N. (2009). Family Change and Student Achievement, in Booth A. and Dunn J. F. (eds) *Family-School links. How do they affect educational outcomes?*, Routledge, New York.
- Zinn, M. B. (1989). Family, Race and Poverty in the Eighties, in *Signs: Journal of Women in Culture and Society*, 14(4), 856-874.

Appendix 1



Source: our elaboration on Eurostat data

Public Finance Research Papers are a publication of the Istituto di Economia e Finanza, DSGE, Sapienza University of Rome –
<https://www.dsge.uniroma1.it/pubblicazioni/istituto-economia-e-finanza/public-finance-research-papers>

Contact: e-pfrp@uniroma1.it