

AN EMPIRICAL ANALYSIS OF THE DETERMINANTS OF CHILD POVERTY IN EUROPEAN COUNTRIES

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Abstract

The main objective of the study is to analyze the significance of the determinants of child poverty before and after social transfers and to assess how child poverty differs from adult poverty. In the empirical part of the study, the panel data analysis method is used for a total of 12 years and 31 European countries between 2006-2017. The main findings of the study show that GINI coefficient, per capita income, female employment, household size and property status of the dwelling are significant determinants of child poverty. The empirical finding reveals that in the selected countries, the impact of social transfers in reducing child poverty is more limited than the impact of social transfers in reducing adult poverty and that social protection programs should be designed and implemented more intensively to reduce child poverty. The study suggests that to combat child poverty in EU countries, it is necessary to review social programs that focus on child inequality programs in a multi-sectoral framework with a view to designing more effective public policies.

Keywords: child poverty, income inequality, social protection program, panel data analysis.

1. Introduction

Child poverty, which can be defined as the state of not being able to reach a certain standard of living, to fully realize one's potential, to meet basic needs, and not having enough resources to meet them, is an important public problem area all over the world, albeit in differing dimensions. In this regard, children's experience of poverty as an environment that harms their mental, physical, emotional, and spiritual development reveals the limitation that comes with associating the definitions of child poverty only in monetary terms such as income and consumption.

Although the most widely accepted view on the definition and measurement of poverty is the monetary approach, the phenomenon of child poverty goes far beyond it. Poverty in terms of income refers to children living in a condition deprived of meeting the most basic needs and not having access to the lowest acceptable standards of the country they live in. In addition, the deprivation of children of the most basic rights and services such as nutrition, water, hygiene, access to basic health and education services, shelter, participation, and protection is defined as a set of multidimensional deprivations. In this sense, the concept of poverty appears in many different forms such as lack of access to adequate education and health services, being compelled to participate in labor markets as unregistered elements, underage marriage, poor housing and environmental conditions, maltreatment (physical, emotional and sexual abuse, neglect and bullying).

The main motivation of the study is to analyze the determinants of child poverty before and after social transfers in European countries. The study also focuses on how social programs comparing adult poverty affect child poverty. While inequality in the primary distribution affects child poverty more negatively than adult poverty, research shows that this persists after social transfers as well. This finding suggests that the impact of social transfers on reducing child poverty is more limited than their impact on reducing adult poverty, and that social programs should be revised with a focus on children in order to achieve more effective results in reducing child poverty.

2. Literature review: determinants of child poverty

In order to effectively combat child poverty, it is important to identify the factors that lead to poverty and/or inequality. Studies in the literature on the determinants of child poverty, which differ from adult poverty, are summarized in Table 1.

Though a new field in the literature, discussions on child poverty and deprivation have recently been on the rise, particularly with studies on inequality. Child poverty can be reduced via policies that help families earn more income and support earned income with other sources. In this framework, government social income support programs, tax policy, and child benefit payments to households can be used to support the budgets of poor families with children. Moreover, in reducing inequalities Atkinson attributes central importance to Child Benefit Programs which should reach every child regardless of household income (Loşonc, 2016). On the other hand, Dayıođlu and Demir Şeker (2016) emphasize

Table 1: Brief literature overview on child poverty determinants

Authors	Main determinants
Becker and Lewis (1973)	household size and number of children
Becker, Murphy and Tamura (1990)	household size and number of children
Bradshaw <i>et al.</i> (1993)	public social programs, education policies
Lipton and Ravallion (1995)	number of children
Connell (1994)	parent education level
Plotnick (1997)	labor market regulation, household income
Van der Gaag and Tan (1998)	early childhood education, public social program
Bradbury and Jänntti (1999)	low wage level, taxation, public social programs
Jack (2000)	housing factors, low wage level
Carlson and Corcoran (2001)	household type
Haurin, Parcel and Haurin (2002)	property status of the dwelling, household income
Davis-Kean (2005)	household income, parent education level
Grawe (2006)	household size and structure, household income, number of children
Harker (2006)	housing factors, household size, and structure
Heinrich (2007)	public social programs
Vandivere <i>et al.</i> (2006)	housing and environmental factors
Collins, Amodeo and Clay (2007)	public social program
Chen and Corak (2008)	public social program, parent education level, labor market regulation, women employment
Engle and Black (2008)	parent education level, early childhood education, public social program
Berg (2008)	parent education level, public social programs, women employment
Burger (2010)	parent education level, household income
Yılmaz <i>et al.</i> (2011)	household income, parent education level, property status of the dwelling, housing factors, household type
Ranjith and Rupasingha (2012)	household income, education level
Cooper and Stewart, (2013)	household income, education level
Buck and Deutsch (2014)	parent education level, labor market regulation
Dayioğlu and Demir Şeker (2016)	low wage level, labor market regulation
Dekar (2016)	parent education level
OECD (2018)	household income, household size, women employment

Source: Consolidated by the authors

that children's well-being is highly dependent on labor market outcomes in situations where social assistance for children remains limited.

According to Cooper and Stewart (2013), economic disadvantages in households, especially those caused by high unemployment rates, limit children's access to many of the benefits available to them, including the most basic public services. As a result, children

growing up in low-income households face more health problems and score worse on cognitive, social, and behavioral development tests than children from better off families. They also attain relatively lower academic achievement and are more likely to commit crimes or engage in delinquent behavior.

In their study 'Child Poverty and Changes in Child Poverty' Chen and Corak (2008) track changes in child poverty rates in 12 OECD countries. The study provides an inter-country perspective on child poverty, changes in child poverty, and the impact of public policies between North America and Europe. In countries where child poverty has declined, the main reason might be considered the government's social transfers to support the labor market. In particular, it is argued in these studies that practices that increase women's participation in the labor market are successful in reducing child poverty. This context reveals, as an important part of the European employment strategy, the need to increase childcare services as the most important component of promoting women's employment and women's participation in the labor market. An OECD (2018) study estimates that a 1% increase in the number of female-headed households would reduce relative child poverty by 0.4%. This effect is said to be twice as large in absolute poverty.

A major determinant of child poverty is the education level of parents. Studies on this subject generally emphasize that children of educated parents are less deprived in many areas than those of parents with insufficient education. The main reason is that parents with a high level of education, generally employed in a well-paying job, are able to provide their children with more opportunities in every aspect than parents with a low level of education (Dekar, 2016, p. 25). Similarly, authors such as Connell (1994), Engle and Black (2008), and Buck and Deutsch (2014) have emphasized the importance of parental education in combating child poverty. As with many other studies on child poverty, these studies underline the importance of parental education in boosting the family's capacity to support child development and academic achievement.

Other determinants of child poverty debates are household size and structure. The impact of household size and structure is shaped by the number of children in the household and the number of parents. The effect of household size on child poverty is generally negative, despite not being true in all countries and circumstances. In other words, there is a general inverse relationship between human capital and household size (Becker, Murphy and Tamura, 1990, p. 12; Becker and Lewis, 1973, p. 280). Consequently, poor families, influenced by tradition too, often fail to engage in appropriate family planning and face the prospect of raising generations in poverty (Lipton and Ravallion, 1995, pp. 30–32). Due to severe deprivations in dwelling, hundreds of thousands of children who make up a significant part of child poverty and deprivation are devoid of a comfortable bed, hygiene, and a sunny room, all of them contributing to their academic success and health (Harker, 2006, p. 8).

In addition, there are two reports prepared by Yılmaz *et al.* (2011) for UNICEF that measure and assess child poverty in Türkiye with different methods. In these reports, the determinants of child poverty are considered to be income level, household size, marital

status of the head of the family, education level of the parents, the nature of the job of the head of the family, property status of the dwelling and household amenities (a well-lit room for the child, kitchen, bathroom, electricity, etc.). Unlike other studies, this study reveals that especially in traditional societies, poor children mostly live in dwellings owned by the family. Possible reasons are the high level of poverty and home ownership in rural areas, the unwillingness of some parents to move to a fixed property due to their jobs even if they have high incomes, or the fact that the income shares that should be allocated to increase the living standards of children are used to meet the common needs of the family such as a house and a car (Yilmaz *et al.*, 2011, p. 38). However, according to a study by Haurin, Parcel and Haurin compared to tenancy, home ownership is claimed to lead to higher quality home environments, higher cognitive skills, and fewer behavioral disorders in children, ranging from 13% to 23% (Haurin, Parcel and Haurin, 2002, p. 660).

3. Child poverty and child poverty in European countries

Emerging as an area of public policy interest at global, national, and societal levels, child poverty has come to be considered a multidimensional problem with the rise of inequality in the world. The problems of people in poverty and also communities, and of the obstacles and opportunities to improve their life conditions, have resulted in the perception of poverty as a complex set of deprivations (Fukuda-Parr, 2006, pp. 7–9). As a social problem, poverty is also seen as a result of economic inequality, with implications for living standards, quality of life, access, and social cohesion, both within households and for individuals (Nolan and Ive, 2011, p. 1).

With the widespread recognition of the need for a special focus on children in poverty measurement, an increased attention has been given to the measurement of poverty and well-being among children. Child-oriented poverty and welfare measurement, which played a marginal role in the general poverty debate, gradually came to be seen as a specialized field. The promotion of children's rights and the ratification of the Convention on the Rights of the Child in almost all countries around the world in the early 1990s were the main reasons that brought children into the poverty debate. Factors such as children's dependence on their direct environment to meet their basic needs, child-specific basic needs and the demand for specific information for the formulation of child-oriented policies are other important reasons calling for the development of child poverty approaches. Additionally, an all-encompassing definition of child poverty is critical as it encourages policymakers and organizations to directly address the specific needs of children (Minujin *et al.*, 2006, p. 495).

The conceptualization of child poverty, which corresponds to the situation of children living in poverty in terms of income, and in deprivation in terms of the most basic needs, refers to children who cannot access the lowest acceptable standards of the country they live in. The standards for identifying poor children vary depending on groups of countries, time, and public policy priority areas. Poverty, which can be considered as a set of

multidimensional deprivations in children, can be manifested in many different ways such as lack of access to adequate education and health services, poor housing and environmental conditions, maltreatment (physical, emotional, and sexual abuse, neglect and bullying) (The Canadian Poverty Institute, 2017, pp. 9–10). In this regard, it is emphasized that children living in low-income households are more likely to face maltreatment (Klebens *et al.*, 2014).

Poverty is the chief factor depriving children of their fundamental human rights too. Severe or extreme poverty can cause permanent damage to children, both physically and mentally, which not only impedes their development but also renders them unable to optimally fulfill the roles they are expected to fulfill successfully throughout their lives in the family and society (Gordon *et al.*, 2003, p. 1). In its 2007 resolution on children's rights, the United Nations General Assembly adopted a generally accepted definition of child poverty. The definition draws attention to the effects of childhood poverty being both more severe and potentially longer lasting than poverty experienced in adulthood. It may be argued that children living in poverty are often deprived of access to basic rights and services, and that this situation, which can cause deep wounds in every person, will affect children much more and make it difficult for them to participate in society as full and equal individuals (Jones and Sumner, 2011, p. 8).

The various reasons why child-oriented approaches to poverty are gaining or should gain ground today are listed as follows (Roelen and Gassmann, 2008, pp. 4–5). Firstly, regardless of time and place, children always face or may face a higher risk of poverty. This is mainly due to the fact that children are directly dependent on their environment even for their most basic needs. The second reason why child-oriented approaches to poverty are rising in importance is that children who grow up in poverty are more likely to be poor in adulthood. Finally, a generally accepted and applicable definition and measurement of child poverty is a key tool for both researchers and policymakers. It not only provides an opportunity to gain insight into the poverty situation of children but also to formulate and monitor strong and effective poverty reduction goals and strategies.

Another issue addressed in discussions on child poverty is the intergenerational transmission of poverty. This is because today's children are tomorrow's adults. Therefore, the way children live and are educated is key to shaping the society in the future. A study that draws attention to the importance of the intergenerational transmission of poverty emphasizes that children born to low-income parents, despite differences in some societies, mostly become low-income adults; and that similarly, children born to high-income parents mostly become high-income adults (Corak, 2006, p. 1). Therefore, understanding the nature of poverty and developing policies to reduce poverty often depends on bringing to light the intergenerational links of poverty (Brooks-Gunn and Duncan, 1997, p. 55).

Figure 1 below shows the differences between total poverty, adult poverty, and child poverty for selected European countries.

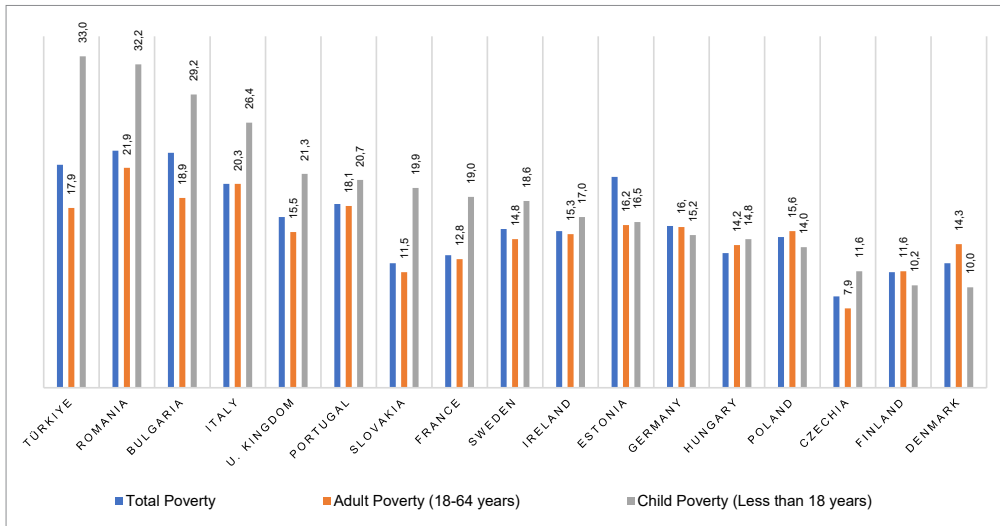


Figure 1: Poverty and child poverty in selected European countries, 2017 (after social transfers – 60% of the median equivalized income scale)

Source: Eurostat (2020)

The outcomes of policies related to public programs for children in countries such as Finland and Denmark, which successfully combat child poverty, reveal a narrowing gap in favor of children vis-à-vis adults. This brings to the fore many determinants such as household income, education level, household size, housing opportunities, ownership, as well as social transfers, especially education-oriented social transfers, tax policies, and women’s participation in the labor force.

One of the methods used in poverty analysis is the examination of poverty rates before and after social transfers. In this regard, the change (decrease) in the poverty rate and the extent of the change demonstrate the impact of social transfers before and after the transfer. This finding reveals the social groups or themes prioritized in government programs. Table 2 below shows the change in child poverty and adult poverty before and after social transfers based on Eurostat data.

While the reduction in child poverty after social transfers was 40.2% on average in the European countries in 2017, the same rate of change in adult poverty is 48.2%. This shows that social transfers, which are an important public policy instrument in reducing child poverty, yield results in favor of adults on average, contrary to expectations. An analysis of the above table by countries demonstrates Finland as the most successful country in reducing child poverty through social transfers, and Türkiye the least successful one. That being said, although child poverty before social transfers is higher in Bulgaria, Hungary, Romania, and the UK, the effect of social programs in reducing child poverty is high in these countries. In countries such as Denmark, Germany, Hungary, Poland, Estonia, and Finland, the reduction in child poverty in the secondary distribution after social transfers is higher than the reduction in adult poverty.

Table 2: Child and adult poverty in European countries before and after social transfers, 2017
(60% of the median equivalized income scale)

	Child Poverty (0–17 years)			Adult Poverty (18–64 years)		
	Before*	After**	%▲***	Before	After	%▲
Belgium	32.6	18.4	43.6	32.7	15.1	53.8
Bulgaria	41.8	29.2	30.1	33.3	18.9	43.2
Czechia	21.6	11.6	46.3	22.7	7.9	65.2
Denmark	22.3	10	55.2	30.7	14.3	53.4
Germany	31.3	15.2	51.4	28.7	16	44.3
Estonia	32.1	16.5	48.6	28.4	16.2	43.0
Ireland	39.8	17	57.3	34.5	15.3	55.7
Greece	36	24.5	31.9	42.2	21.7	48.6
Spain	36.3	28.3	22.0	36.2	21.7	40.1
France	37	19	48.6	34.3	12.8	62.7
Italy	35.3	26.4	25.2	34.1	20.3	40.5
Cyprus	29	16.5	43.1	29	14.2	51.0
Latvia	31.7	18.4	42.0	29.5	17.5	40.7
Lithuania	39.6	25.7	35.1	30.9	18.8	39.2
Luxembourg	39.3	22.8	42.0	40.6	18.8	53.7
Hungary	45.7	14.8	67.6	35.4	14.2	59.9
Malta	30.3	21.2	30.0	26.3	13.2	49.8
Netherlands	23.5	14.4	38.7	26.4	13.8	47.7
Austria	40.2	19.1	52.5	31.4	13.5	57.0
Poland	37.5	14	62.7	35.8	15.6	56.4
Portugal	29	20.7	28.6	34.4	18.1	47.4
Romania	45.7	32.2	29.5	37.8	21.9	42.1
Slovenia	27.8	12.8	54.0	32.5	12.6	61.2
Slovakia	35.3	19.9	43.6	28.1	11.5	59.1
Finland	31.8	10.2	67.9	31.5	11.6	63.2
Sweden	35.4	18.6	47.5	30.9	14.8	52.1
U. Kingdom	42.4	21.3	49.8	30.4	15.5	49.0
Iceland	28,0	11,5	58,9	21,6	9,9	54,2
Norway	31.8	13.7	56.9	30.5	13	57.4
Switzerland	30.8	18	41.6	25.5	11.9	53.3
Türkiye	41.6	33	20.7	34.7	17.9	48.4
EU Area	34.1	20.4	40.2	32.6	16.9	48.2

Note: * denotes poverty rates before social transfers; ** denotes poverty rates after social transfers; and *** denotes child poverty reduction rates of social transfers.

Source: Eurostat (2020); Authors' work

Although child poverty is considered a major social problem around the globe, there are significant differences in terms of both anti-poverty policies and the consequences of poverty on children. That being said, child poverty is lower in countries where policies aimed at improving welfare are widely implemented and where revenues allocated to these services are higher (Bradbury and Jäntti, 1999). The reasons why these practices for children vary across countries can be summed up in three categories, namely demographic, economic, and socio-political factors (Bradshaw *et al.*, 1993, p. 266).

4. An empirical analysis of the determinants on child poverty in European countries

4.1. Data and methodology

For the empirical application part of the study, panel data analyses were performed covering a total of 12 years and 31 European countries between 2006-2017. Data is taken from the Eurostat data system, except for the per capita growth rate (World Bank). In addition, the data set used in the study is an unbalanced panel due to the absence of an equal number of time periods for each unit.

The explanatory variables used in the study are indicators widely accepted as determinants of child poverty, as discussed in the literature review section. Within the scope of the study, the determinants of child poverty are limited to the annual GDP per capita growth rate, income inequality and the issue of distribution, women's employment, parental education, household size (number of adults and children), and property status of the dwelling. These variables to be used as determinants of child poverty before and after social transfers and included in the analyses are selected from two groups, namely economic and socio-cultural factors. Economic factors to be used are the annual growth rate of GDP per capita, the Gini Coefficient before and after social transfers as an indicator of income inequality, female employment, and property status of the dwelling. As socio-cultural factors, variables indicating the number of siblings, household size, and parents' education level will be used. Accordingly, Table 3 below shows the countries, summary descriptions of variables, and databases used in the empirical application.

The data used in the study on child poverty were obtained from the Eurostat (Income and Living Condition, EU SILC). Data was taken from the 'Income and Living Condition (ile)/Monetary Poverty (ilc_li)' tables under 'Living Conditions and Welfare (livcon)' from the Eurostat database (Living conditions and welfare/Income and living conditions/Income distribution and monetary poverty/Monetary poverty). Children less than 18 years old are at risk of poverty when they live in a household whose income, once social transfers have been considered, is below 60% of the country's median income. Total disposable income of the household is calculated as 'equivalized size' according to the modified OECD scale (weighing 1.0 for the first adult, 0.5 for other persons aged 14 and over living in the household, and 0.3 for children of all ages). The poverty line we consider in our study is relative poverty based on the OECD modified equivalence scale (60% of equivalent median

Table 3: Countries covered and explanations of variables used in the model

Countries examined in the study	Representation of the variable	Variable	Unit of variable	Reference
	<i>The Dependent Variables</i>			
	beforecy	Child* poverty before social transfers	Percentage	EUROSTAT (2020)
	aftercy	Child poverty after social transfers	Percentage	EUROSTAT (2020)
	<i>Explanatory Variables: Economic Factors</i>			
	bfrgini	Gini Coefficient before social transfers (%)	Percentage	EUROSTAT (2020)
	afrgini	Gini Coefficient after social transfers (%)	Percentage	EUROSTAT (2020)
	gdpgrwt	Annual percentage growth rate of GDP per capita	Percentage	World Bank-WDI (2020)
	womemp	Women employment **	Percentage	EUROSTAT (2020)
	owner	Property status of the dwelling: Ownership (Households with dependent children)	Percentage	EUROSTAT (2020)
	<i>Explanatory Variables: Socio-cultural Factors</i>			
	excesschild	Distribution of households with 4 or more children	Percentage	EUROSTAT (2020)
	moreparent	Distribution of households with 3 or more adults with dependent children	Percentage	EUROSTAT (2020)
	primaryedu	Distribution of children by educational attainment level of their parents less than primary, primary and lower secondary education	Percentage	EUROSTAT (2020)

* Based on the 0–17 age range for the child population. ** Based on the 20–64 age group as the most suitable group in the data set for women's employment.

Source: Authors' compilation

income). Furthermore, data on child poverty before and after social transfers are taken directly from the Eurostat database. Social transfers cover the social support provided by central, state or local institutional units. Regarding the Eurostat methodology, it includes old-age (retirement) and survivors' (widows' and widowers') pensions, unemployment benefits, family-related benefits, sickness and invalidity benefits, education-related benefits, housing allowances, social assistance, and other benefits. Child poverty after social transfers refers to income redistribution as a result of public policies, while child poverty before social transfers refers to market redistribution. Descriptive statistics of the models are given in Table 4 below.

Table 4: Descriptive statistics

Series	Mean	Standard deviation	Max.	Min.
beforecy	41.61	4.68	53.4	26.2
aftercy	16.14	4.10	26.7	7.9
bfrgini	48.54	4.71	61.6	37.3
afrgini	30.01	4.54	44.9	22.5
gdpgrwt	1.59	3.86	24	-14.3
womemp	64.06	10.60	84.5	24
owner	31.97	14.60	69.7	8.2
excesschild	2.88	1.70	11.1	0
moreparent	12.09	9.19	38.7	0.3
primaryedu	34.69	21.47	93.4	4.2

Source: Authors' calculations

4.2. Models and empirical findings

Since poverty is a long-term phenomenon and its impact is related to earlier periods, the determinants of child poverty are tested with dynamic panel data analysis. In other words, poverty is analyzed as part of a dynamic structure rather than a static form. Moreover, the dynamic model considers the effect of the dependent variable in the past period on the dependent variable in the current period. In addition, the use of lagged dependent variables leads to the estimation of biased and inconsistent parameters in static panel data models. Accordingly, the 'Difference GMM' version of the Generalized Method of Moments (GMM) developed by Arellano and Bond (1991) is used to eliminate the issue of the non-stationary residual that may occur in the static panel data model. In order to eliminate unit effects, this method takes the first differences of the variables used in the regression. Afterward, lags of the dependent variable are used as instrumental variables for different lags. The fact that it avoids the endogeneity problem is another reason why this estimation method is preferred (Roodman, 2009, pp. 86–97).

Selected determinants of child poverty are tested in two models, before (market distribution) and after (secondary distribution) social transfers. The regressions under the two

models estimated in the study are as follows:

Model 1:

$$beforecy_{it} = \delta beforecy_{i,t-1} + \beta_1 bfrgini_{i,t} + \beta_2 gdpgrwt_{i,t} + \beta_3 womemp_{i,t} + \beta_4 owner_{i,t} + \beta_5 excesschild_{i,t} + \beta_6 moreparent_{i,t} + \beta_7 primaryedu_{i,t} + \theta_{it} + \mathcal{E}_{it} \quad (1)$$

Model 2:

$$aftercy_{it} = \delta aftercy_{i,t-1} + \beta_1 bfrgini_{i,t} + \beta_2 afrgini_{i,t} + \beta_3 gdpgrwt_{i,t} + \beta_4 womemp_{i,t} + \beta_5 owner_{i,t} + \beta_6 excesschild_{i,t} + \beta_7 moreparent_{i,t} + \beta_8 primaryedu_{i,t} + \theta_{it} + \mathcal{E}_{it} \quad (2)$$

In the above equations, $beforecy_{it}$ denotes child poverty before social transfers, and $aftercy_{it}$ denotes child poverty after social transfers. δ : refers to the lagged value of the dependent variable, θ : unobserved unit effects, and \mathcal{E} the error term. $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ and β_8 are coefficients indicating the direction and magnitude of the effect of explanatory variables.

Model (1) investigates the impact of both economic and socio-cultural variables on child poverty before social transfers, while model (2) examines the impact of both economic and socio-cultural variables on child poverty after social transfers. The empirical results of Model 1 and Model 2 with the two-step GMM¹ method are given in Table 5.

Table 5: Arellano-Bond dynamic panel estimations

The dependent variable: <i>beforecy</i>		The dependent variable: <i>aftercy</i>	
1.MODEL		2.MODEL	
beforecy (-1)	0.5023715***	aftercy (-1)	0.3762747***
bfrgini	0.4854459***	bfrgini	0.0446609**
		afrgini	0.3460388***
gdpgrwt	-0.0062613	gdpgrwt	-0.0272378***
womemp	-0.1478732***	womemp	0.0934425***
owner	0.0576155***	owner	0.0016397
excesschild	0.0184737	excesschild	0.0043308
moreparent	0.0441746	moreparent	0.0589175***
primaryedu	-0.0052206	primaryedu	0.0008979
Number of countries	31	Number of countries	31
N	300	N	300
Sargan Test	25.27013	Sargan Test	20.86769
AR2	0.6885	AR2	-0.09532

Note: The signs (*), (**) and (***) show statistical significance at the level of 10%, 5%, and 1%, respectively. N represents the number of observations. The z statistics are placed in parentheses.

Source: Authors' calculations

1 The Sargan test conducted to check the one-step GMM estimation rejects the null hypothesis that the instrumental variables in the model are valid. In order to fill this gap, the two-step GMM is used in our study.

Before an interpretation of the findings of the Arellano-Bond tests, the autocorrelation test (AR) and Sargan test were applied to test the consistency of the estimators. The Sargan and autocorrelation test statistics in the table indicate, respectively, the suitability of the instruments used and the impossibility to reject the null hypothesis of 'no second order autocorrelation'.

The results of dynamic panel regression analyzing child poverty before and after social transfers under economic and socio-cultural factors are as follows.

The first model that analyzes economic and socio-cultural factors related to child poverty before social transfers demonstrates a highly significant effect in the three variables. In the first model, P values for *bfrgini*, *womemp*, and *owner* are statistically significant at the .01 level. *Gdpgrwt*, *excesschild*, *moreparent*, and *primaryedu* are not statistically significant. *Ceteris paribus*, a 1% increase in the Gini coefficient before social transfers increases child poverty by 0.48%. For a 1% increase in female employment, the child poverty rate decreases by 0.14%. *Ceteris paribus*, a 1% growth in home ownership for households with dependent children raises the child poverty rate by 0.05%. Evidently, income inequality is the most determining factor of child poverty before social transfers. In a market economy, any change in primary income inequality resulting from market decisions has a strong determinant effect on child poverty.

In the second model, which examines economic and socio-cultural factors related to child poverty after social transfers, five variables demonstrate a highly significant effect. In the second model, p values for *afrgini*, *gdpgrwt*, *womemp*, and *moreparent* are statistically significant at the .01 level. The p value of *bfrgini* in the second model is statistically significant at .05 level. *Ceteris paribus*, a 1% increase in the Gini coefficient after social transfers increases the child poverty rate by 0.34%. Moreover, the Gini coefficient before social transfers, i.e. in the first distribution, positively affects child poverty after social transfers. On the other hand, for a 1% rise in the annual percentage growth rate of GDP per capita, the child poverty rate goes down by 0.02%. Unlike the first model, a 1% increase in female employment in the second model increases child poverty by 0.09%. All other things being equal, for a 1% increase in the distribution of households with 3 or more adults with dependent children, the child poverty rate goes up by 0.05%. The coefficients reveal that income inequality is the most determinant factor on child poverty after social transfers.

Our main finding suggests that any deterioration in income inequality will increase child poverty. This is quite consistent with the existing literature, particularly studies by Plotnick (1997), Bradbury and Jäntti (1999), Ranjith and Rupasingha (2012), and UNICEF (2016). Therefore, based on the model results and in line with expectations, a strong relationship was found between child poverty and overall poverty. What comes to the fore is the design and implementation of social policies and programs addressing the differentiation of the needs of vulnerable families, especially those below the poverty line. In this regard, policy formulations should consider factors such as the size of the family, women's employment, and the property status of the dwelling.

The negative relationship between female employment and child poverty before social transfers was reversed after social transfers. According to studies by Eurostat (2004) and

Chen and Corak (2008), an increase in female employment is expected to have a positive effect on reducing child poverty. This leads to a discussion of the results of social policies in the form of transfers, which have reached a significant amount, as part of their limited child-focus and the deepening of the wage gap between income brackets when women enter working life. It is suggested that income differentiation in income brackets and the entry of more women into paid employment should be the subject of further research.

The annual growth rate of GDP per capita significantly affects child poverty after social transfers. Put differently, an increase in the annual growth rate of GDP per capita reduces child poverty after social transfers, as shown by most studies such as Plotnick (1997), Haurin, Parcel and Haurin (2002), Ranjith and Rupasingha (2012), Cooper and Stewart (2013), and OECD (2018).

Lastly, in model 2, a significant and positive relationship was found between households with 3 or more adult-dependent children and child poverty after social transfers. This is in line with studies such as Becker and Lewis (1973), Becker, Murphy and Tamura (1990), which suggest that child poverty would be higher in crowded households. Table 6 below summarizes the significant and non-significant results in the models.

Table 6: Summary table of the results

	Model 1: (Child poverty before social transfers)	Model 2: (Child poverty after social transfers)
bfrgini	(+) ^{***}	(+) ^{**}
afrgini		(+) ^{***}
gdpgrwt	ns	(-) ^{***}
womemp	(-) ^{***}	(+) ^{***}
owner	(+) ^{***}	ns
excesschild	ns	ns
moreparent	ns	(+) ^{***}
primaryedu	ns	ns

Note: The signs (*), (**), and (***) show statistical significance at the level of 10%, 5% and 1%, respectively. ns shows non-significant results.

Source: Consolidated by the authors

The empirical results of the study obtained with the two models are summarized below:

- Income inequality based on the GINI coefficient is the most determinant factor for child poverty both before and after social transfers.
- The annual growth rate of GDP per capita significantly affects child poverty after social transfers. In other words, an increase in the annual growth rate of GDP per capita reduces child poverty after social transfers.
- While the increase in female employment has a negative effect, as expected, on child poverty before social transfers, the negativity is reversed after social transfers.
- After social transfers, poverty is higher for children living in relatively crowded households with three or more adults.

5. Conclusion and assessment

Reasons behind the development of child poverty approaches include children's direct dependency on their environment to meet their basic needs, their unique needs that differ from those of adults and other segments of society, and the demand for specific information by policymakers and organizations to directly address children's problems. Moreover, manifesting itself as a vicious cycle that children enter into at birth, child poverty is also a major cause and indicator of adult poverty within a life cycle and intergenerational transmission of poverty. Therefore, combating child poverty as a short-term objective leads to a reduction in adult poverty in the long run, thereby breaking the cycle of intergenerational transmission of poverty.

The policies aimed at preventing child poverty can be prioritized by revealing, first and foremost, the size and impact of determinants that cause the phenomenon. Consequently, the priorities of fiscal policy within formulated spending programs may also be identified, thereby serving policy effectiveness. In this regard, the present study analyzes the determinants of child poverty using the dynamic panel data analysis method based on 31 European countries for the period 2006–2017.

The significant and positive relationship between the Gini coefficient and child poverty both before and after social transfers reveals that income inequality is a critical determinant of child poverty. The situation remaining unchanged after social transfers demonstrates that income distribution policies are also insufficient to reduce income inequality, especially when it comes to reaching the desired level of correction for children compared to adult poverty. The impact of the market income distribution, which has a strong structural implication, is also reflected in the secondary distribution. This suggests a need for positive discrimination in terms of the share of family and child-oriented social policies, especially in public social programs that cover schools and the social environment.

Furthermore, according to the results of the analysis, another important issue in terms of reducing child poverty is the need to strengthen the role of women in society. To that end, women's participation in the labor market may be supported by increasing the number of nurseries, organizing training programs to boost women's vocational skills, extending paid maternity leave, and observing positive discrimination in working hours, especially for women with young children. However, in situations where women's participation in the labor market deepens the gap between sectors, child poverty also worsens. The positive relationship between child poverty after social transfers and women's employment raises the issue of further income differentiation among households after women's employment, and the limited child-centered nature of social transfers deepens the gap between income groups.

As part of effective social expenditure programs, increasing the share of social protection benefits, especially for vulnerable groups, can eliminate the limited impact of transfers in correcting income inequality. Similarly, in the field of education, where social benefits are high, supporting education expenditures that prevent children from attending school, expanding access to school in rural areas, facilitating children's school attendance,

complementary education programs, improving the quality of education and incentives are of significance for children in poor and vulnerable households.

In conclusion, what we consider only as ‘child poverty’ in the short term is the most important determinant of adult poverty in the long term. In this regard, starting with children to break the cycles of poverty in society is the smartest step towards reducing poverty and inequality. This will not only reduce inequality and poverty in the society in question but also pave the way for social welfare by reducing the cycle of poverty as a whole.

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