Book of Short Papers

SIS 2021

Editors: Cira Perna, Nicola Salvati and Francesco Schirripa Spagnolo

Child poverty and government social spending in the European Union during the economic crisis

Povertà infantile e spesa pubblica nell'Unione Europea durante la crisi economica

Angeles Sánchez and María Navarro[1]

Abstract: Fighting child poverty is desirable to foster the sustainability of the social well-being for coming generations and, in addition, to ensure equality of opportunities for all children. Using panel data methodology, this work analyses the association between child poverty and government social spending in the 28 Member States of the European Union during the last economic crisis (2008-2014). We confirm that the government social spending as a whole, as well as the government spending on education and health negatively correlated with child poverty during the economic crisis, while government social protection spending did not it. That is to say, within the context of economic crisis in which European Union displayed policies to ensure sustainability of public finance, reductions in social spending and increases in child poverty could be associated.

Abstract: *La lotta alla povertà infantile è importante per promuovere la sostenibilità del benessere sociale per le generazioni future e, anche, per garantire l'uguaglianza di opportunità tra i bambini. Utilizzando dati panel, questo lavoro analizza l'associazione tra povertà infantile, spesa sociale pubblica nei 28 Stati membri dell'Unione Europea durante l'ultima crisi economica (2008-2014). I risultati confermano che la spesa pubblica nel suo insiemecosì come la spesa pubblica per istruzione e salute sono correlate negativamente* con *la povertà infantile durante la crisi economica i, mentre la spesa pubblica per la protezione sociale no. Vale a dire, nel contesto della crisi economica in cui l'Unione Europea ha mostrato politiche per garantire la sostenibilità della finanza pubblica, potrebbero essere associate riduzioni della spesa sociale e aumenti della povertà infantile.*

---

[1] Angeles Sánchez, Department of Applied Economics, University of Granada (Spain); sancheza@ugr.es
María Navarro, Department of Economics and Business, University of Almeria (Spain); marianh@ual.es

Introduction

Over the last few years, there has been a growing interest on child poverty and social exclusion for the majority of the governments in developed countries, especially since the last economic crisis.

Two different reasons do the study and prevention of child poverty matter. Firstly, children were the most affected group by the poverty during the last economic crisis in the European Union (EU). In 2014, 27.5% of the population under the age of 16 in the EU-28 was considered at-risk-of poverty or social exclusion (AROPE) compared to 23.7% of the entire population (Eurostat, Statistics on Income and living conditions). Secondly, the social and economic future of a country depends on its capacity to fight child poverty and social exclusion, since these problems represent a threat to future generations in terms of both economic development and social stability (Diris et al., 2017; Esping-Andersen et al., 2002; Frazer and Marlier, 2017). Consequently, fighting child poverty is desirable to achieve equality of opportunities for all children, as well as fostering improvements of living standards and prosperity (Brazier et al., 2017; OECD, 2019).

In this work, panel data methodology is used to analyze the relationship between government social expenditure and child poverty in the 28 Member States of the EU, for the period of the economic crisis between 2008 and 2014. Particularly, our main aims are to check under a framework of economic crisis (1) the relationship between government social expenditure and child poverty, and (2) whether all the categories of social expenditure correlated in the same way.

Child poverty evolution

Figure 1 reports poverty rates through AROPE for people under 16 years old, i.e. child poverty, for the years 2008 and 2014, in the Member States and EU-28 as a whole. As a firts glance, it is worth noting that the child poverty rates are greater in 2014 than in 2008 in almost the countries. We can also observe that there are disparities in child poverty between countries. In some of them, such as, for instance, Austria, Belgium, Germany, Denmark, France or The Netherlands, child poverty rates are below the EU-28 in both years, whereas Romania, Bulgary, Hungary, Greece, Spain, Italy or the United Kingdom report levels above the EU-28 as a whole.

Moreover, countries were affected differently by the economic crisis. Changes in child poverty rates from 2008 to 2014 were modest for the majority of countries, except for Greece, Spain, Italy, Hungary and Malta, where child poverty has considerably increased between both years. Thus, these countries have gotten worse in terms of child poverty from the beginning of the economic crisis, whereas only Croatia or Poland have gotten better.
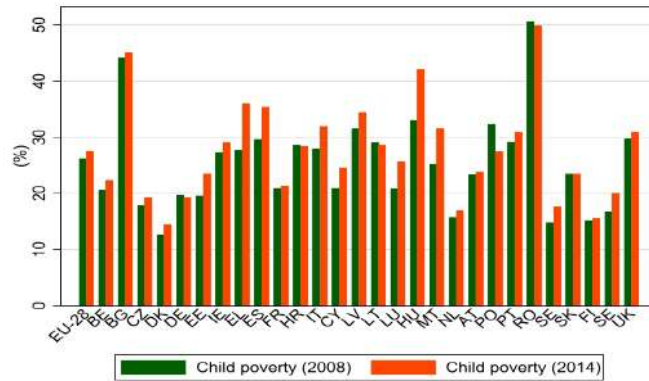
Figure 1. Child poverty across European Union in 2008 and 2018. The values for Croatia in 2008 are referred to 2010 (first available year with information), and for EU-28 are referred to the rate of EU-27. Adapted from Eurostat, Income and living conditions.

Data and Variables

We used highly balanced macro panel data with information from Eurostat on child poverty, government social spending, tax structure, and economic and socio-demographic variables of EU-28 Member States over the period 2008-2014.

Child Poverty is the dependent variable in our analysis. Particularly, we consider the AROPE indicator for children under 16 years old. This represents the percentage of the population younger than 16 that share in at least one of the following three conditions: poverty risk, severe material deprivation and/or low work intensity.

The explanatory variables are classified into two groups: fiscal policy and socio-economic factors. In the first group, we include *Government Education Spending, Government Health Spending* and *Government Social Protection Spending* and the variable *Government Social Spending*, which is the sum of the previous three variables. All of them are measured in constant 2015 Euros per billion inhabitants. We also include a dummy variable to account for the tax structure of the Member State (*Tax Structure*), which measures the relationship between direct and indirect taxes, in order to account for how the expenditures are financed (Diris et al., 2017; Sánchez and Pérez-Corral, 2018). This takes the value 1 if the ratio of the country is greater than the value of the ratio for the EU-28 as a whole, and 0 otherwise.

Within the second group of explanatory variables, *Economic Growth Rate* allows analysing the influence of economic context on child poverty. This variable is introduced in the models with a delay of two years. The variable *Early Leavers* reflects the percentage of population aged 18 to 24 that has dropped out of education and training, and *Age Childbirth* measures the average age of women at birth of first child.

444

Methodology

In order to study the relationchip between child poverty and fiscal policy and economic growth, we define the following model:

$$P_{it} = \omega_0 + \beta'G_{it} + \lambda'T_i + \phi'E_{it-2} + \eta'X_{it} + \alpha_i + u_{it} \qquad (1)$$

i denotes the country and t the year. P it is the level of child poverty in the country i in the year t; G_{it} represents the variables of government social expenditure; T_i is the variable dummy, to have a more progressive tax structure than the EU-28 as a whole; E_{it-2} is the two years lagged *Economic Growth Rate; X_{it}* is a set of socio-economic variables in which *Early Leavers* and *Age Childbirth* are included; α_i is the individual effect of each of the countries or unobservable heterogeneity invariant in time; and u_{it} is the error term.

Based on literature (Baltagi, 2014; Hsiao, 2014), and after doing several test to check the nature of the data (see Table 1), we estimate several fixed effects models according to equation (1) with two estimators: Feasible Generalized Least Squares (FGLS) and Panel Corrected Standard Errors (PCSE). To account for time fixed effects in our analysis, we also include a set of year dummies.

Table 1: Results of the tests to choose the estimation method and to analyse the error term

Restrictive F test	$F(27,106) = 52.20$ (p < 0.001)
Breush and Pagan Lagrangian Multiplier	$Chi2(1) = 195.02$ (p < 0.001)
Hausman test	$Chi2(6) = 38.27$ (p < 0.001)
Modified Wald test	$Chi2 = 261.88$ (p < 0.001)
Wooldridge test for panel data	$F(1,27) = 10.38$ (p = 0.0033)
Pesaran'test of cross sectional independence	0.766 (p = 0.4434)
Year dummies	$F(4,102) = 4.59$ (p = 0.0019)

Note. The tests have been carried out taking as a baseline a specification without the dummy of Tax Structure.

Results

Table 2 presents the descriptive statistics of the variables used in the study. Table 3 reports the results of the models estimated using FGLS (Models 1 and 3) and PCSE (Models 2 and 4). Models 1 and 2 are estimated for the total government social spending and Models 3 and 4 include the different concepts of social spending, that is, spending on education, health and social protection.

As expected, a negative association between child poverty and government social spending as a whole is found. Thus, we can confirm that this kind of spending can buffer child poverty. Regarding the different concepts of social spending, both a higher spending on education and health would help to combaint child poverty, whereas a possitive association between child poverty and spending on social protection is found.

Table 2: Descriptive statistics of child poverty in 28 Members States, 2008-2014

Variable	Mean	SD	Min	Max	Median
Child poverty	27.12	9.3	12.7	52.8	26.25
Government Social Spending	7.93	5.72	1.03	25.49	5.91
Government Education Spending	1.42	1.01	0.19	5.02	1.12
Government Health Spending	1.73	1.18	0.21	4.53	1.33
Government Social Protection Spending	4.78	3.61	0.58	16.42	3.54
Economic Growth	0.27	3.75	-14.8	9.3	0.9
Early Leavers	11.62	6.02	2.8	34.9	10.9
Age Chilbirth	29.84	1.14	26.5	31.8	30

Note. N = 140 observations. SD = standard deviation. Adapted from Eurostat: Income and Living Conditions, Government and Finance Statistics, Annual National Accounts, Labour Force Survey and Fertility.

Table 3: Regression analysis: child poverty and government social spending in the European Union-28, 2008-2014

	Model 1	Model 2	Model 3	Model 4
Government Social Spending	-0.387***	-0.384**		
	(0.119)	(0.169)		
Government Education Spending			-4.738***	-4.505**
			(1.423)	(1.822)
Government Health Spending			-4.998***	-4.529***
			(1.358)	(1.700)
Government Social Protection Spending			2.242***	1.884**
			(0.582)	(0.775)
Tax Structure	-1.894*	0.028	0.675	1898
	(1.149)	(1.528)	(1.302)	(1.630)
Economic Growth(t-2)	-0.254***	-0.282***	-0.249***	-0.258***
	(0.070)	(0.092)	(0.072)	(0.089)
Early Leavers	0.584***	0.550***	0.579***	0.532***
	(0.105)	(0.117)	(0.100)	(0.108)
Age Childbirth	-3.794***	-3.783***	-3.821***	-3.648***
	(0.683)	(0.809)	(0.622)	(0.732)
Observations (countries)	140 (28)	140 (28)	140 (28)	140 (28)
Wald's test (Chi2)	179.25***	102.42***	216.95***	144.33***
R-squared		0.766		0.780
Rho		0.747		0.735

Note. Estimators used: Feasible Generalized Least Squares (Models 1 and 3) and Panel Corrected Standard Errors (Models 2 and 4). Standard errors in parentheses. A constant term and time dummies are included in all the models. * $p < 0.1$, ** $p < 0.05$, ***$p < 0.01$.

Concerning control variables, a negative association between child poverty and economic growth is found. Moreover, dropping out of school is possitively correlated with child poverty, while the higher age of the mother at birth of the first child, the lower child poverty is.

Conclusions

Taking into account that during the years of economic crisis (especially the years of the stability of public finances 2011, 2012 and 2013), both spending on education

and health have registered negative annual variation rates in the whole of the EU-28, the results confirm that these reductions in social spending have contributed to the increase in child poverty. For the government social spending as a whole, the same results are observed. These findings are in line with most papers (Benedetti and Betti, 2020; Cantillon et al., 2017; Thévenon et al., 2018). On the contrary, spending on social protection has registered a better performance (with smaller decreases), especially since part of its programs are automatic stabilizers of the economy (i.e. unemployment benefits). In line with other studies (Diris et al., 2017; Vliet and Wang, 2015), the results of the estimated models indicate that its relationship with child poverty is positive.

These findings should be studied in greater depth, distinguishing between groups of countries with different institutional characteristics and analyzing the aspects of social programmes that can explain the effectiveness in the fight against child poverty.

References

Baltagi, B.H.: Econometric Analysis of Panel Data (reprint, 5th ed.). Wiley, London, UK (2014)

Brazier, C.: Building the future: children and the sustainable development goals in rich countries. UNICEF Office of Research - Innocenti, Florence, Italy (2017)

Diris, R., Vandenbroucke, F., Verbist, G.: The impact of pensions, transfers and taxes on child poverty in Europe: the role of size, pro-poorness and child orientation. Socioecon Rev, 15(4), 745–775 (2017) https://doi.org/10.1093/ser/mww045

Esping-Andersen, G., Gallie, D., Hemerijck, A., Myles, J.: Why we need a new welfare state. Oxford University Press, USA (2002)

Frazer, H., Marlier, E.: Progress across Europe in the Implementation of the 2013 EU Recommendation on Investing in Children: Breaking the Cycle of Disadvantage. A study of national policies, European social policy network, Brussels: European Commission (2017)

Hsiao, C.: Analysis of panel data. Cambridge University Press, Cambridge, UK (2014)

OECD: Can Social Protection Be an Engine for Inclusive Growth? (2019) https://doi.org/10.1787/9d95b5d0-en (accessed 2.14.21).

Sánchez, Á., Pérez-Corral, A.L.: Government social expenditure and income inequalities in the European Union. Hacienda Pública Española 227(4), 133–156 (2018)

Vliet, O.V., Wang, C.: Social Investment and Poverty Reduction: A Comparative Analysis across Fifteen European Countries. Journal of Social Policy 44(3), 611–638 (2015) https://doi.org/10.1017/S0047279415000070