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Economic freedom and people at risk of poverty in selected Eurozone countries

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A B S T R A C T

This paper investigates whether higher economic freedom and/or lower government intervention in the economy contribute to poverty reduction. Connecting the percentage of people at risk of poverty with the economic freedom index elaborated by the Fraser Institute, and focusing on 12 Eurozone countries in the period between 2000 and 2019, it appears that both higher economic freedom and a lower level of government intervention in the economy (mostly lower spending in government consumption, investment and transfers and subsidies) are associated with an increase in poverty, which stands in contrast to the predictions of neoliberal economic theory.

1. Introduction

According to Eurostat data, in 2022, more than 72 million people were considered at risk of poverty or social exclusion in the group of 27 countries of the European Union.[1] These data suggest two reflections: i) poverty is a persistent phenomenon in the Eurozone, and this increase was fuelled by the occurrence of two negative events: the economic and financial crisis of 2007–2008 and the COVID-19 pandemic; and ii) the fight against poverty requires the maximum commitment from European governments and institutions.

In this vein, the European Pillar of Social Rights elaborated by the European Commission (2021) established three main objectives to achieve by 2030: i) at least 78% of the population aged 20 to 64 should be employed; ii) at least 60% of all adults should participate in training every year; and iii) the number of people at risk of poverty or social exclusion should be reduced by at least 15 million. The fight against poverty and the attempt to build a fairer society is thus recognised by the European Commission as a social and economic objective. However, if there is a unanimous consensus about the necessity of tackling poverty and inequality (Canale et al., 2019; Liotti and Canale 2020; Crettaz, 2011, 2015; Darvas et al., 2014), there is less agreement about the political and economic strategy that should be followed to achieve this result.

From a theoretical point of view, mainstream economic theory based on neoliberal principles claims that economic growth and prosperity can be achieved by increasing economic freedom (Gwartney and Lawson, 2003; Heritage Foundation, 2021, 2022, 2023; Heckelman, 2000). Proponents argue that economic freedom fosters individual well-being, economic progress, global democracy and poverty reduction through respect for property rights, market competition, individual decision-making and free international trade (Doucouliagos and Ulubasogluas, 2006; Gwartney and Lawson, 2003; Hanke and Walters, 1997; Heritage Foundation, 2023; Lawson, 2022; Tag and Degirmen, 2022). From a historical point of view, neoliberal economic theory originates in the thought of Hayek and,

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[1] https://ec.europa.eu/eurostat/databrowser/view/ilc_li02_custom_9712514/default/table?lang=en.

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later, Milton Friedman; its perceived success has led it to be considered the dominant ideology of modern economic thought (Peck, 2010; Rutar, 2023).

The neoliberal view is strictly connected to the concept of economic freedom, which emphasises the primacy of a free-market competition system over state-controlled planning. Neoliberal theory advocates privatisation, deregulation of business and labour markets, lower taxation, reduced government intervention and greater international trade. This has led to the transformation of the structures of many advanced economies in a neoliberal sense and in contrast with the Keynesian tradition that had dominated since the end of World War II until 50 years ago.

The project aiming at the neoliberal transform the economic system began in the 1970s when Keynesianism, based on government intervention as a driver and stabiliser of the economic cycle, went into crisis due to stagflation, which hit Western economies. A neoliberal vision of the economy emerged in this context that emphasised the need for structural reforms such as the privatisation of state-owned enterprises, fiscal austerity and deregulation of the business and labour market (Woods, 2006). According to neoliberal theory, the role of government intervention in the economy should be minimal and limited only to implementing reforms to maximise economic freedom (Friedman, 2002). Therefore, as Karaba (2016) has argued, freedom, in the economic sense, is thus intertwined with neoliberal identity.

One of the channels through which economic freedom would ensure the increase of individual well-being and the reduction of poverty is via economic growth (Apergis and Katsale, 2018; Doron and Stratmann, 2020; Piątek et al., 2013; Saccone and Migheli, 2022). The link between economic freedom and economic growth can be explained as follows: higher economic freedom leads to an increase in business opportunities for entrepreneurs and ensures sustainable and prolonged economic growth. This higher economic growth, in turn, leads to a decline in poverty and an increase in social mobility (Burnie, 2021; Carlsson and Lundström, 2002; Cervelló-Royo et al., 2023; Daron and Stratmann, 2020; Dawson, 1998; De Haan and Siermann, 1998; De Haan et al., 2006; Gwartney and Connors, 2010; Gwartney et al., 1999; Gwartney et al., 2004; Nelson and Singh, 1998; Sturm and De Haan, 2001; Sturm et al., 2002; Tag and Degirmen, 2022; Williamson and Mathers, 2011). The literature on economic freedom and economic growth is very large and goes beyond the scope of this paper, so only a brief overview is provided.

Islam (1996) found a positive relation between economic freedom and growth (measured as an increase in per capita income), while Tag and Degirmen (2022) underlined how the institutions of countries that respect the rule of law and trade freedoms are much more attractive for foreign investment and, consequently, for economic growth. Doran and Stratmann (2020) claimed that economic freedom is a prerequisite for economic growth and for the reduction of absolute poverty; in particular, by analysing data on 151 countries over a 20-year period, they found that higher economic freedom reduced absolute poverty through its positive effect on economic growth.

Cervellò et al. (2023)arrived at the same conclusion and found that elevated levels of economic freedom correspond to higher levels of economic growth and lower unemployment, while Aixalá and Fabro (2009) and Saccone and Migheli (2022) found that economic freedom, via economic growth, prevents countries from falling into so-called “poverty traps”. Saccone and Migheli (2022) pointed out, however, the influence of inequality level in determining the validity of the inverse relation between economic freedom and poverty: indeed, they underlined that if a country suffers from high income inequality, higher economic freedom does not produce beneficial effects on poverty. Finally, Apergis and Katsaiti (2018) analysed a panel of countries in the period 1992–2014 and concluded that economic freedom reduces the risk of (absolute) poverty.

Most of the economic literature thus seems to suggest that the beneficial effects of higher economic freedom on poverty are not direct, but indirect; that is, this beneficial effect is always mediated by the impact that economic freedom has on economic growth (Heritage Foundation, 2021). This explains why the theoretical and empirical literature has paid much attention to the relationship between economic freedom and growth rather than to the relationship with poverty. However, two objections can be made to this type of analysis: first, several authors have raised doubts concerning the existence of a positive relation between economic freedom and economic growth and the causality link, that should run from the former to the latter, and second, economic freedom may affect poverty not only indirectly, but also directly.

Regarding the first point, Sturm and de Haan (2001) claimed that the empirical positive effects of economic freedom on economic growth are not robust, while Weede and Kämpf (2002) found that the level of economic freedom has no effect on economic growth. Some authors have also expressed doubts about the issue of causality: for example, Farr et al. (1998), Alvarez-Arce and Vega-Gordillo (2003), suggested that economic freedom and economic growth are jointly determined.

Regarding the second point, economic freedom may affect poverty not only indirectly, via economic growth, but also directly through the implementation of structural reforms that guarantee higher freedom in specific markets and institutions. For example, economic freedom could affect poverty via higher “freedom” in the labour market, for example. Indeed, the same neoliberal economic theory claims that higher economic freedom, in reducing the rigidity of the labour market, increases the opportunities for unemployed and young workers to find a job and thus contributes to reducing the poverty level (Bernal-Verdugo et al., 2013; Di Prete et al., 2006; Eichhorst and Hemerijck, 2008; Lucifora et al., 2005; Zemanek 2010).

Neoliberal economic theory, however, also underlines another important point – that is, the existence of a reverse relationships between economic freedom and the degree of government intervention in the economy. Indeed, in contrast to common thinking on the subject, neoliberalism claims that excessive intervention in the national economy hurts economic freedom and does not produce positive social effects (Berliner, 1999; Gwartney and Lawson, 2003). In other words, the general idea is that if the government intervention (i.e. the size of government) in the national economy (understood in terms of percentages of GDP) is beyond the essential minimum (i.e. military defence and the administration of justice), it forms an obstacle to economic freedom and thus has negative effects on growth and poverty.

However, the neoliberal premise seems to be very hard to accept unconditionally. Indeed, if on the one side, it seems that there is a

unanimous consensus about the necessity of defending the values of economic freedom, on the other side, some doubts can be raised about the possibility of combining respect for economic freedom – within a capitalist economic system – with the need to build a society in which the social gaps between the different social classes are not excessive. In fact, quite a few scholars have opposed the idea of a passive role of the government in the economy and have warned about the risks of a growth in inequality and poverty generated by economic freedom without constraints and corrective instruments. In this sense, following the "government size-led growth view" (Ebaidalla, 2013; Ghali, 1999), it has been claimed that there is a positive association between government intervention in the economy and economic growth, with Granger-causality that runs from the former to the latter.

According to this general context, this paper therefore contributes to the economic and empirical debate about the effect of economic freedom on poverty by testing the validity of the two following hypotheses: i) higher economic freedom leads to a decline in the percentage of people at risk of poverty, and ii) there exists an inverse relationship between the size of government (which is one of the indicators of the general economic freedom index) intervention and the percentage of people at risk of poverty.

The last question concerns the problem of empirically measuring the degree of economic freedom. While the neoliberal theoretical view of society and the economy has been clearly defined, a key question remains: how can we measure how close a country's economic freedom is to neoliberal ideals? Several indices have been used in empirical studies to measure a country's level of economic freedom considering the core principles of neoliberal theory (Rutar, 2023), including indices developed by the Heritage Foundation and the Fraser Institute. However, it is important to point out that the economic freedom index (used in this paper) elaborated by the Fraser Institute is considered the 'gold standard' for measuring the impact of neoliberalism on the economy and the distance between a country's economic freedom and neoliberal ideals (Gwartney et al., 2021).

The rest of this paper is organised as follows: Section 2 presents the theoretical debate against and in favour of government intervention in the economy. Section 3 details the empirical analysis, employing the pooling mean group (PMG) methodology to test the effects of economic freedom and/or lower government intervention in the economy on poverty. Section 4 is dedicated to the conclusions.

2. Government intervention in the economy and the ideal of economic freedom

As stated in the previous section, neoliberal economic theory claims there is an inverse relationship between government intervention and economic freedom. Government intervention is typically measured by expenditure, with the general idea being that lower government spending (i.e. smaller government size) translates to higher economic freedom (Bjørnskov and Foss, 2008; Cervelló-Royo et al., 2023). According to neoliberals, the national government's goal should be to implement policy reforms that ensure economic opportunities for businesses and to promote productive efficiency, free competition and access to credit (Heritage Foundation, 2021, 2023). In other words, they advocate for complete liberalisation of the economy (Sachs et al., 2004), minimising government intervention and limiting its role to enforcing competition rules without direct intervention beyond essential functions like national defence and the administration of justice. This stance – as already stated above – contrasts with the idea, in vogue between the end of World War II and the 1970s (the Keynesian era), that the national government can play an active and direct role in fighting poverty through fiscal policy.

The critique against excessive government intervention hinges on two main points. First, neoliberals argue that fighting poverty and inequality requires the national government to adopt redistribution policies from richer to poorer population segments. However, they believe such policies can generate negative effects on both growth and poverty. According to the Heritage foundation (2023), redistribution policies force governments to raise taxes, which reduces private capital accumulation and investment, ultimately undermining economic development and potentially increasing poverty. Second, neoliberals argue that strong government intervention through expansionary fiscal policy is not capable of generating significant economic growth. Indeed, they believe the positive effect on aggregate demand is negated by the crowding-out of private investment. Crowding-out occurs when government borrowing drives up interest rates, thus making it more expensive for private businesses to borrow and invest. Essentially, neoliberals believe that government borrowing competes with private investment for limited resources and results in no net increase in aggregate demand. Even if government intervention did produce positive short-term effects on growth and employment, neoliberals argue these effects would be temporary and disappear in the long run.

The view theorising the passive role of government in the economy has been strongly criticised. Keynesian and post-Keynesian theory – as is well known from the innumerable contributions produced starting from the general theory (Keynes, 2010) – points out the fundamental role of government fiscal policy in boosting economic activity, particularly during recessions (Nyasha and Odhiambo, 2019). Häge (2003), for example, claimed that the government can affect the economy by getting its revenue through taxes and using them not only to guarantee subsidiaries and the whole welfare system, but also to produce goods and services; this has a positive effect on economy growth via the Keynesian multiplier. The same results have been confirmed by Loizides and Vamvoukas (2005), who claimed that government intervention in the economy stimulates economic growth, and by Garcia-Sanchez et al. (2013)[1–6], who stressed that the size of government contributes directly to economic development.

In the same vein, Skott (2021) claimed that, according to post-Keynesian theory, the modern economy is driven by aggregate demand, while aggregate supply is largely irrelevant. This means that if the management of the economy is left only to the free market, following supply side theory, the economic system may suffer from a structural lack of aggregate demand, thus failing to ensure growth and full employment. In this context, fiscal and monetary policy becomes fundamental to ensure high aggregate demand and economic development. Overall, Keynesian and post-Keynesian theories, unlike neoliberal ones, advocate for government intervention as a tool to stimulate economic growth and reduce poverty.

3. Empirical analysis

3.1. The effect of economic freedom and its indicators on poverty

An empirical model was built to check the connection between economic freedom and the percentage of people at risk of poverty. The sample includes the "original" 12 Eurozone countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, the Netherlands, Spain, and Portugal. The choice to restrict the empirical investigation to these 12 Eurozone countries was because they were the first countries to join the single European currency and because they shared the same economic policy principles when the Maastricht treaty was signed.

The study period covers the years 2000–2019. The analysis stops in 2019, as this is the last year before the COVID-19 crisis, when the policy rules completely changed to counteract systemic shocks to both supply and demand. The dependent variable is the percentage of people at risk of poverty, which is the share of the total population with an equivalised disposable income below the at-risk-of-poverty threshold of 60% of the national median equivalised disposable income after social transfers; this information is available in the Eurostat database.[2]

The main independent variable is economic freedom, the data for which have been annually elaborated by the Fraser Institute[3] since 2000.[4] The value of the economic freedom index is obtained as a simple average of several sub-indicators in the following five areas (all based on Gwartney and Lawson, 2003; Gwartney et al., 2023).

- *Size of Government (Area 1)*. This area indicates the extent to which countries rely on individual choice and markets rather than the political process to allocate resources and goods and services. When government spending increases relative to spending by individuals, households and businesses, government decision-making is substituted for personal choice and economic freedom falls.
- *Legal System and Property Rights (Area 2)*. This area indicates the necessity of a country to ensure the rule of law, security of property rights, an independent judiciary and an impartial court system. Indeed, if a country guarantees that the legal system protects property rights, the enforcement of contracts and the mutually agreeable settlement, this leads to a beneficial effect on the market exchange system, and individuals will be incentivised to increase their productive activities.
- *Sound Money (Area 3)*. This area considers the absence of sound money a threat to the economic system, with reference to high volatility in price levels. Indeed, high and volatile rates of inflation distort relative prices, alter the fundamental terms of long-term contracts and make it virtually impossible for individuals and businesses to plan sensibly for the future.
- *Freedom to Trade Internationally (Area 4)*. Freedom of exchange is a key to economic freedom that contributes substantially to improving living conditions and to the country's economic development.
- *Regulation (Area 5)*. This area focuses on the regulations that restrict entry into markets and interfere with the freedom to engage in voluntary exchange. To get a high score, countries must refrain from regulatory activities that retard entry into business and increase the cost of producing products.

The values for economic freedom and its five areas range from 0 to 10: the higher the index, the greater the degree of freedom in each country. Fig. 1 shows the trend for economic freedom and the percentage of people at risk of poverty in the 12 Eurozone countries in the period 2000–2019. From Fig. 1, it is possible to note a certain degree of correlation between the two variables. It seems clear that from 2003 to 2017 (except for the two-year period 2007–2008), the two variables moved in the same direction. In other words, when the level of economic freedom increases, the percentage of people at risk of poverty increases, too, and vice versa.

However, before moving on with the analysis, it is worth making two observations: i) correlation does not mean that there is a relation between the two variables, and ii) the use of the general economic freedom index does not make much sense if we exclude the impact of each single area that composes it from the analysis. Indeed, if it is true that, on the one side, the general economic freedom index is useful because it can indicate the path of economic liberalisation within the context of the Eurozone, it is necessary, on the other side, to consider that the five areas that compose the index do not follow homogenous trends (see figures in appendix). These considerations consequently led us to the need to use ad hoc empirical techniques to detect both the relationship between economic freedom and people at risk of poverty and to evaluate how the individual specific areas of the economic freedom index are connected with the dependent variable.

3.2. Methodology and results

The empirical strategy sought to test the existence of a linear relationship between the percentage of people at risk of poverty and economic freedom and its five areas. The econometric methodology is based on the error correction model (ECM), which shows two main options to estimate the long-run relationship between dependent and independent variables – namely, PMG and the mean group (MG). The difference between the two methodologies relies on the fact that PMG supposes that the intercept and the short-run coefficient of independent variables differ, while the long-run ones are equal across groups (Blackburne and Frank, 2007; Pesaran et al., 1997, 1999), and vice-versa, MG supposes that not only intercept, but also short- and long-run coefficients differ across groups

[2] https://ec.europa.eu/eurostat/databrowser/view/ilc_li02/default/table?lang=en&category=livcon.ilc.ilc_ip.ilc_li.
[3] https://www.fraserinstitute.org/economic-freedom/dataset.
[4] Previously, the data were collected every 5 years.

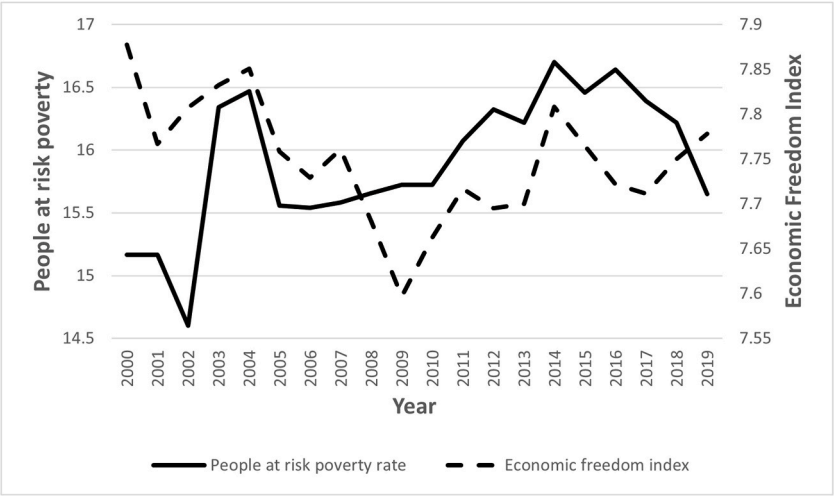


Fig. 1. Economic freedom and people at risk of poverty in 12 Eurozone countries.
Source: author's calculations

(Blackburne and Frank, 2007). The use of PMG or MG options gives different empirical results. However, the Hausman test allows us to detect – between PMG and MG – the option that performs better in the empirical analysis. According to the Hausman test (p-value = 0.3304 and chi^2 = 2.21), the PMG estimator is to be preferred. The long-run equation is described by:

$$PR_{i,t} = \alpha_i + \lambda_i\, PR_{i,t-1} + \beta_{i,0} EFI_{i,t,j} + \beta_{i,1} EFI_{i,t-1,j} + \gamma_{i,0} X_{i,t} + \gamma_{i,t} X_{i,t-1} + \varepsilon_{i,t} \tag{1}$$

where i indicates the country and t time. PR is the people at risk of poverty indicator, and EFI is the indicator of freedom with the subscript j referring to its sub-indicators. X refers to the control variables, and ε is the error term. The error correction equation describing the short-run speed of adjustment is:

$$\Delta PR_{i,t} = \phi_{i,j}\left(RP_{i,t-1} - \vartheta_i - \vartheta_{1,i,j} EFI_{i,t,j} - \vartheta_{2,i} X_{i,t}\right) - \beta_{i,1}\Delta PR_{i,t} - \gamma_{i,1}\Delta X_{i,t} + \mu_{i,t} \tag{2}$$

It is easy to verify that ϑ_i, $\vartheta_{1,i,j}$ and $\vartheta_{2,i}$ are the long-run coefficients calculated as a weighted average of the coefficient of the independent variables. The parameters to be estimated in the model are parameter $\vartheta_{1,i,j}$ for the long run and $\beta_{1,i}$ for the short run. The value and significance of the coefficients ϕ are of the utmost importance, because they confirm the validity of the proposed empirical model: the results show that, in the long run, the dependent and independent variable converge toward a common path and that the difference in their trends is progressively decreasing over time. However, a necessary condition that must be satisfied before implementing the ECM: all variables must be non-stationary at level, stationary at first differences and cointegrated. Because there is cross-sectional dependence[5] among countries, the second generation unit root test was used.

Table 1 shows that both people at risk of poverty and economic freedom are non-stationary at the level and stationary at first differences. Moreover, the Westerlund test for cointegration confirms that the two variables are cointegrated. Therefore, having satisfied these preliminary conditions, it is possible to run the empirical regressions.

In the empirical regressions, in addition to the economic freedom index and its five areas, two other control variables have been added: inflation and the growth in per capita GDP.[6] The rationale for the inclusion of these two control variables is that an increase in the general level of prices has negative effects for recipients of fixed wages or salaries, which increases their risk of falling into the poverty trap, and the opposite effect should be observed when the per capita GDP grows (Kis et al., 2015). Table 2 describes the empirical results.

The first general result (Column 1) shows there is a positive relationship between economic freedom and the percentage of people at risk of poverty. In other words, higher economic freedom is associated with a higher percentage of people at risk of poverty. This result could be explained by the idea that the economic benefits derived by a higher economic freedom are not distributed homogenously among different social classes – or put differently, this could be due to a greater concentration of wealth leading to an increase in poverty. This result thus leads to the rejection of the first hypothesis about the existence of a negative relationship between economic freedom and poverty (at least when the index used is the percentage of people at risk of poverty). However, as has been noted, an in-depth investigation of the effects of economic freedom on poverty cannot ignore the specific analysis of the effects derived from the five areas of economic freedom on the dependent variables.

[5] In Pesaran the null hypothesis is that no cross-sectional dependence. The value of Pesaran's test is 3.117, with P-value = 0.001. So, the null hypothesis can be rejected.

[6] Data on inflation and GDP per capita are available on Eurostat website. https://ec.europa.eu/eurostat/web/main/data/database.

Table 1
Second generation of Unit Root Tests and Westerlund cointegration test for 12 Eurozone countries.

Variable	Observations	Zt-bar	P-value
Level			
People at risk of poverty	216	−1.353	0.088*
Economic Freedom index	216	−0.294	0.384
First differences			
ΔPeople at risk of poverty	204	−4.365	0.000***
ΔEconomic Freedom index	204	−3.371	0.000***
Westerlung Cointegration Test			
Statistic	Value	Z-value	P-value
Gt	−1.520	−1.810	0.035**
Ga	−4.637	−0.636	0.263
Pt	−4.625	−2.447	0.007***
Pa	−2.954	−2.307	0.011**

Notes: H0: series has a unit root (individual unit root process). Ha: at least one panel is stationary. Table shows that all series are not stationary at level and stationary at the first differences. In Westerlund cointegration test, Ho: No cointegration. Ha: Some panels are cointegrated. *,**,***, rejects the null hypothesis at 10, 5 and 1 percent.

Table 2
People at risk of poverty and Economic Freedom in the Eurozone: PMG estimation results.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Long run						
Economic Freedom	2.669*** (0.966)					
Legal system and property rights		0.754 (0.666)				
Size of government			1.765*** (0.591)			
Freedom to trade internationally				−2.464*** (0.420)		
Regulation					1.992*** (0.521)	
Sound money						1.252** (0.552)
Inflation	1.444*** (0.251)	1.218*** (0.264)	0.732*** (0.225)	0.184 (0.139)	1.448*** (0.214)	
GDP per capita growth	−0.447*** (0.070)	−0.364*** (0.070)	−0.499*** (0.092)	0.157** (0.075)	−0.603*** (0.107)	−0.222*** (0.063)
Short run						
EC	−0.172*** (0.049)	−0.202*** (0.047)	−0.245*** (0.052)	−0.286*** (0.079)	−0.109*** (0.055)	−0.287*** (0.050)
ΔEconomic Freedom	0.982 (0.732)					
ΔLegal system and property rights		0.020 (0.741)				
ΔSize of government			0.922 (0.578)			
ΔFreedom to trade internationally				0.409 (0.417)		
ΔRegulation					0.170 (0.413)	
ΔSound money						−0.283 (0.284)
ΔInflation	0.076** (0.031)	0.075** (0.031)	0.039* (0.021)	0.011 (0.030)	0.025 (0.038)	
ΔGDP per capita growth	−0.021 (0.020)	−0.020 (0.020)	−0.041 (0.026)	0.029 (0.018)	−0.023 (0.020)	−0.012 (0.013)
Observations	200	200	200	200	200	200
N. of groups	12	12	12	12	12	12

Note:***, **, and * reject the null at 1%, 5% and 10% respectively: Standard errors are presented below the estimated coefficients.

From Column 2 to Column 6 the impact of the individual areas of economic freedom on people at risk of poverty is estimated. The table shows that these areas have varying effects on the percentage of people at risk of poverty. Indeed, Table 1 shows the existence of a positive relation with the percentage of people at risk of poverty for three areas – that is legal system and property rights (Column 2), regulation (Column 5) and sound money (column 6) – although the coefficient for the legal system and property rights is not statistically significant. The positive relationship between regulation and the rate of people at risk of poverty is noteworthy. It is important to remember that higher values in the labour market regulation index correspond to greater labour market flexibility (Liotti, 2022; Liotti et al., 2023). This higher deregulation leads to.

i) Reduced employment protection: Deregulation often weakens job security by allowing for more temporary and atypical contracts.
ii) Lower annual worker income: With less bargaining power due to a flexible labour market, workers may experience stagnant or declining wages.

These factors can contribute to an increase in the percentage of people at risk of poverty. Concerning the effect of sound money on poverty, a focus on price stability as the main objective of monetary policy can limit – especially in recession periods – economic

activity, thus hindering reductions in unemployment and poverty. This explains the positive correlation between sound money and people at risk of poverty. However, it is important to note that inflation was not included as a control variable in this analysis, because three out of four sub-indicators of sound money are connected to price stability. The inclusion of inflation in the regression should have influenced exclusion the results because this variable could be highly correlated with sound money.

Another important result is given by Column 4 of Table 1, which relates the effect of greater freedom of international trade on the population at risk of poverty. The empirical result shows the existence of an inverse relation between higher freedom to trade internationally and poverty. This is, however, a widely expected result as international trade benefits all countries by creating new markets for the outlet of national goods, which is a channel for creating wealth, work and reducing poverty.

The empirical model also includes two control variables – that is, inflation and growth of per capita GDP – which capture the general macroeconomic conditions in each country. The growth of per capita GDP accounts for the level of development and the average income in each country regardless of the distribution of income. Concerning inflation, the hypothesis of a positive effect on people at risk of poverty is confirmed. The coefficient of the inflation rate on the percentage of people at risk of poverty ranges between 0.732 (Column 3) and 1.448 (Column 5), and, except in Column 4, it is always statistically significant. Regarding the growth of per capita GDP, most of the results seem to show a negative correlation (except for Column 4) between the growth of per capita GDP and percentage of people at risk of poverty. The coefficient of the growth of per capita GDP – except in Column 4 – is always negative and ranges between −0.222 (Column 6) and −0.603 (Column 5). The negative effect of the growth in per capita GDP on the percentage of people at risk of poverty is not surprising, because it is intuitive that an increase of per capita GDP, independent of distribution (which can be also quite different among social classes), leads to society as a whole.

I have left for last the analysis on the size of government, which allows us to test the second hypothesis of neoliberal theory according to which higher government intervention in the economy hurts economic freedom and has adverse social and economic effects, with inevitable consequences on poverty. The size of government is the simple average of several sub-indicators dedicated to specific components of the public budget. According to Column 6 from Table 1, a higher value for size of government (i.e. lower government intervention in the economy) is associated with an increase in the percentage of people at risk of poverty. This result seems to contrast with the neoliberal prediction according to which a smaller government presence in the economy does not contribute to reducing poverty. However, as with the economic freedom index, also the size of government is only a general index composed of several sub-indicators. Consequently, if we want to explain the mechanism through which government intervention in the economy affects poverty, we cannot fail to examine the effects of these specific indicators on the percentage of the population at risk of poverty.

3.3. Size of government sub-indicators and people at risk of poverty in the eurozone

As has been mentioned earlier, the size of government indicates the presence of the government in economic activity. However, the size of government indicator is composed of five sub-indicators.

i) Government consumption, which measures general government consumption spending as a percentage of total consumption.
ii) Transfers and subsidies, which measure government transfers and subsidies as a share of GDP.
iii) Government investment, which measures government investment as a share of total investment.
iv) Top marginal tax rate, which assigns a lower value to countries with a higher marginal tax rates that takes effect at lower income thresholds. In other words, the higher the marginal tax rate and the lower the income on which it is applied, the lower the degree of freedom related to this part of the revenues of the public sector. It is noteworthy that this last index may detect higher

Table 3
People at risk of poverty and Size of government sub-indicators: PMG estimation results.

Variables	(1)	(2)	(3)	(4)	(5)
Long-run					
Government Consumption	2.233*** (0.847)				
Government investment		0.953*** (0.352)			
Transfers and subsidies			1.025*** (0.319)		
Top marginal tax rate				0.658*** (0.196)	
State ownership of assets					1.134*** (0.443)
Inflation	1.592*** (0.331)	0.295 (0.208)	1.082*** (0.179)	0.510** (0.197)	1.182*** (0.231)
GDP per capita growth	−0.784*** (0.175)	−0.403*** (0.106)	−0.528*** (0.077)	−0.318*** (0.072)	−0.437*** (0.078)
Short-run					
EC	−0.117*** (0.039)	−0.264*** (0.057)	−0.220*** (0.056)	−0.255*** (0.062)	−0.201*** (0.052)
ΔGovernment Consumption	0.521 (0.432)				
ΔGovernment investment		1.1947 (0.872)			
ΔTransfers and subsidies			0.447* (0.268)		
ΔTop marginal tax rate				−0.000 (0.125)	
ΔState ownership of assets					−0.424 (0.499)
ΔInflation	0.056 (0.027)	−0.002 (0.023)	0.059** (0.027)	0.021 (0.020)	0.075** (0.025)
ΔGDP per capita	−0.027 (0.020)	−0.036* (0.020)	−0.031 (0.028)	−0.009 (0.022)	−0.007 (0.019)
Observations	200	200	200	200	200
N. of groups	12	12	12	12	12

Note:***, **, and * reject the null at 1%, 5% and 10% respectively: Standard errors are presented below the estimated coefficients.

freedom both if the tax rate declines – given the income threshold – and if the income threshold increases – given the top marginal tax rate.

v) State ownership of assets is the last sub-indicator and defines the degree to which the state owns and controls capital (including land) in the industrial, agricultural and service sectors. The higher the value of this sub-indicator, the lower the level of economic freedom.

Looking at Table 3, the empirical results show a positive relationship between all sub-indicators for the size of the government and people at risk of poverty. In other words, lower state intervention in the economy, both in the form of direct support for aggregate demand (as in the case of government consumption and government investment) or in the form of wealth transfers towards the less well-off classes is associated with a higher percentage of people at risk of poverty.

It is important to underline the role of two other components of the size of government indicators: government consumption (Column 1) and government investment (Column 2). The economic interpretation is that as government consumption and government investment fall, the percentage of people at risk of poverty increases. The range of the coefficient depends upon the different effects of public expenditure on personal income. In fact, government consumption is supposed to increase national income directly through the Keynesian multiplier, while the coefficient of government investment registers the fact that public expenditure in investment takes longer to yield its strategic effects on each country's industrial structure. The effect of transfers and subsidies is also smaller due to targeting a narrower population. The results seem to suggest that an increase of market liberalisation increases the number of poor, whether one looks at the general phenomenon or the smaller presence of the public sector in economic activity.

Table 4
People at risk of poverty and Economic Freedom in the Eurozone in the period 2008–2019: PMG estimation results.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Long run								
Economic Freedom	6.121***							
	(0.637)							
Sound money		5.053***						
		(0.916)						
Freedom to trade internationally			−1.000**					
			(0.398)					
Regulation				3.181***				
				(0.600)				
Size of government					−0.572			
					(0.780)			
Government consumption						1.591**		
						(0.716)		
Government investment							1.393***	
							(0.411)	
Transfers and subsidies								1.277***
								(0.112)
Inflation	1.444***		0.190***	0.274***	3.602***	1.184***	0.216***	2.029***
	(0.251)		(0.071)	(0.077)	(0.681)	(0.224)	(0.075)	(0.161)
GDP per capita growth	−0.181***	0.056 (0.044)	−0.124**	−0.115**	−0.029	0.155**	−0.145**	−0.405***
	(0.051)		(0.053)	(0.047)	(0.109)	(0.066)	(0.066)	(0.053)
Short run								
EC	−0.368***	−0.344***	−0.316***	−0.312**	−0.076*	−0.136	−0.352***	−0.160***
	(0.131)	(0.074)	(0.107)	(0.129)	(0.045)	(0.096)	(0.105)	(0.059)
ΔEconomic Freedom	3.754***							
	(1.167)							
ΔSound money		0.445 (0.305)						
ΔFreedom to trade internationally			1.017**					
			(0.434)					
ΔRegulation				0.527				
				(0.540)				
ΔSize of government					0.286			
					(0.636)			
ΔGovernment consumption						0.422		
						(0.500)		
ΔGovernment investment							−0.241	
							(0.504)	
ΔTransfers and subsidies								0.156 (0.313)
ΔInflation	0.041**		0.009 (0.029)	0.010	0.098	0.039	−0.011	0.106 (0.052)
	(0.016)			(0.029)	(0.063)	(0.050)	(0.029)	
ΔGDP per capita growth	−0.017	0.017*	−0.004	−0.014	0.010	0.030	0.010 (0.023)	0.000 (0.036)
	(0.029)	(0.009)	(0.018)	(0.027)	(0.030)	(0.035)		
Observations	144	144	144	144	144	144	144	144
N. of groups	12	12	12	12	12	12	12	12

Note:***, **, and * reject the null at 1%, 5% and 10% respectively: Standard errors are presented below the estimated coefficients.

3.4. Robustness check: effect of economic freedom on the people at risk of poverty after the outbreak of 2008 financial and economic crisis

However, it is important to note that the dataset includes a period in which the economic system was hit by the 2008 financial and economic crisis. This event could have led to a bias in the general results shown in the previous section based on the whole period 2000–2019. To account for this potential bias, the analysis was re-run for the period after the 2008 financial crisis.

The empirical results are shown in Table 4. In the first part of Table 4 (from Column 1 to Column 5), the effects of economic freedom and its sub-areas on people at risk of poverty after 2008 have been estimated. The results show, in general, that the effects of the general economic freedom index and its sub-areas were stronger after the outbreak of the economic and financial crisis compared to the period 2000–2019 as a whole. Indeed, Column 1 indicates that the coefficient of the economic freedom index is equal to 6.121 (more than twice the general coefficient estimated in Table 3). This result seems to suggest that the increase in the degree of economic freedom produced the opposite results to those predicted by neoliberal economic theory. Considering the specific sub-areas, sound money (i.e. anti-inflationary monetary policy, Column 2) and higher deregulation in business and labour market (Column 4) show a positive correlation with the dependent variables. In this case, too, the effects of these two areas on poverty seem to be higher after 2008 compared to the general results detected in the previous section. The only area that has contributed to a decline in poverty was higher international trade (Column 3).

The second part of Table 4 analyses the effects of the size of government and its sub-indicators on people at risk of poverty. The coefficient of size of government (Column 5) is negative but not statistically significant, although get more accurate information about the effect of this index it is important to focus on its sub-indicators, such as government consumption, government investment and transfers and subsidiaries. Columns 6, 7 and 8 show that the general reduction in government intervention in the economy (via a reduction in government consumption, government investment and transfers and subsidies) had an adverse effect on poverty. These general results seem to suggest that, unlike the prediction of neoliberal economic theory, government intervention in the economy – with the aim to mitigate the undesired effects generated by a "pure" free economy market system – is necessary particularly when the economy is hit by a prolonged downturn.

4. Conclusions

This paper investigated the effect of economic freedom and government size on the percentage of people at risk of poverty. From a theoretical point of view, mainstream economic theory, mostly based on neoliberal ideas, claims that economic freedom can contribute to poverty reduction via economic growth, with the consequence that political institutions must work to create a free economic environment to stimulate growth. In the same vein, neoliberalism also suggests that another necessary condition of higher economic growth is limiting government intervention in the economy because when the size of government increases, economic freedom declines. This there explicitly affirms that the size of government – going beyond guaranteeing the results of competition – damages economic growth and increases poverty.

This paper tested the validity of two hypotheses namely: i) that economic freedom contributes to reducing poverty; and ii) that the size of government is inversely correlated to poverty. The empirical results – based on 12 Eurozone countries – rejected both hypotheses. Regarding the first hypothesis, we found that increases in the economic freedom index and some specific indicators (regulation and size of money) in fact increase poverty. The only exception concerns freedom to trade internationally; indeed, for these specific indicators, higher freedom to trade leads to economic benefits and contributes to reducing the percentage of people at risk of poverty. Concerning the second hypothesis, we found that a larger government (i.e. greater national intervention in the economy) contributes to reducing poverty. The empirical results show that government consumption and government investment represent the main tools through which the government can reduce the percentage of people at risk of poverty. In particular, analysing the sub-indicators for size of government, the empirical results show that cuts to public spending in areas such as government consumption, government investment and transfers and subsidies in particular have adverse effects on people at risk of poverty.

The results lead us to reflect on the fact that the role of government in advanced economies should not be considered as being in contrast to the values of economic freedom for two reasons: i) economic freedom alone does not guarantee the reduction of poverty, and ii) government intervention has to be considered a useful tool that helps society to achieve fundamental social aims, such as poverty reduction, without which freedom of choice is difficult to realise.

CRediT authorship contribution statement

Liotti Giorgio: Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft, Writing – review & editing.

Declaration of competing interest

I state that I do not have conflict of interest. Moreover, I state that this paper has not been submitted to another journal.

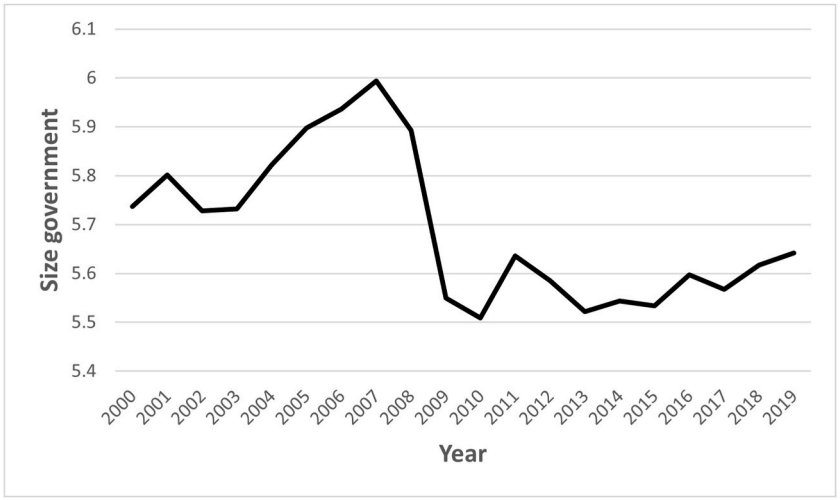


Fig. A1.

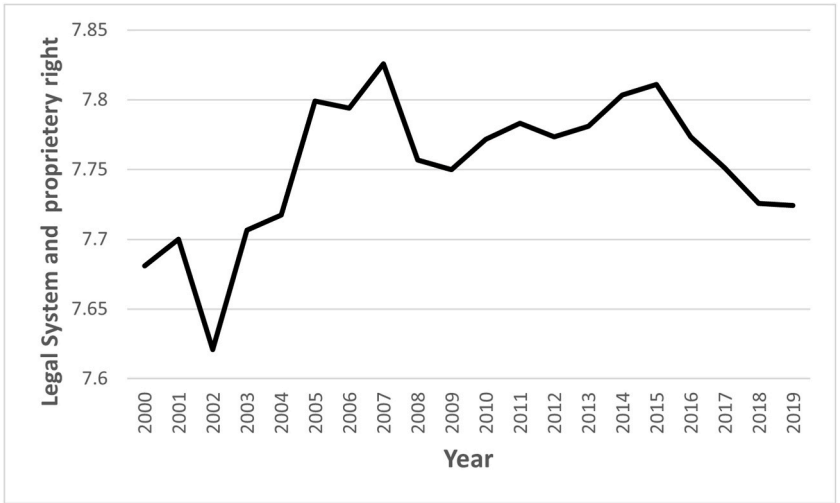


Fig. A2

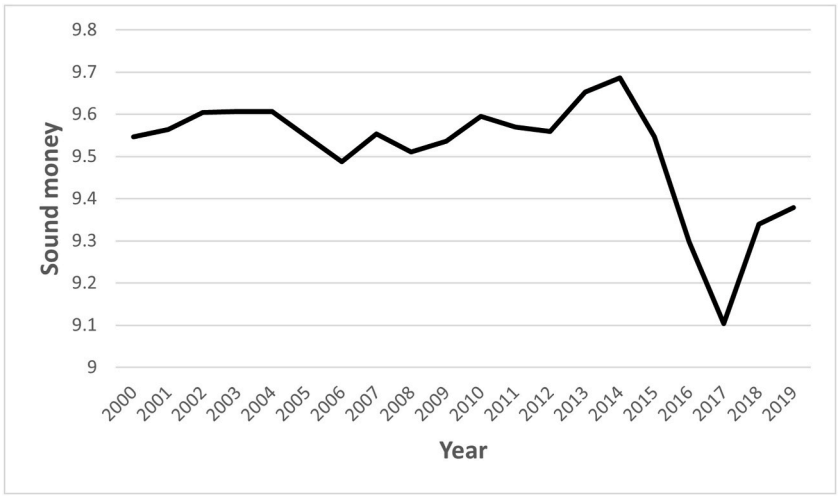


Fig. A3.

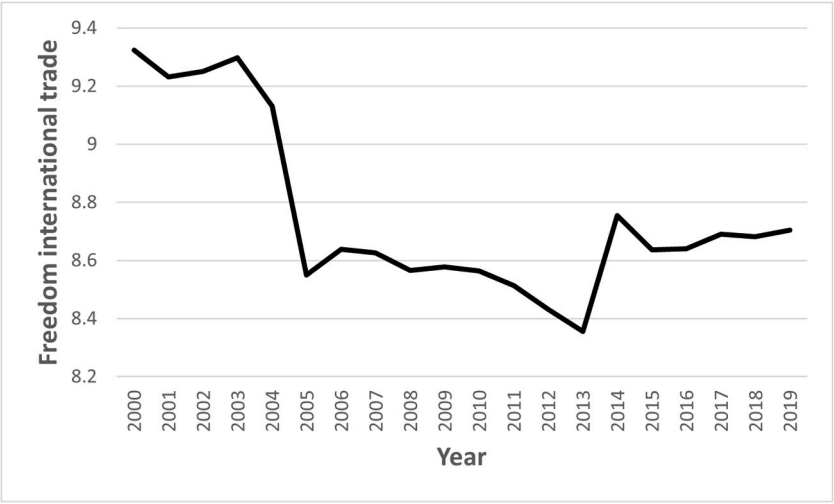


Fig. A4.

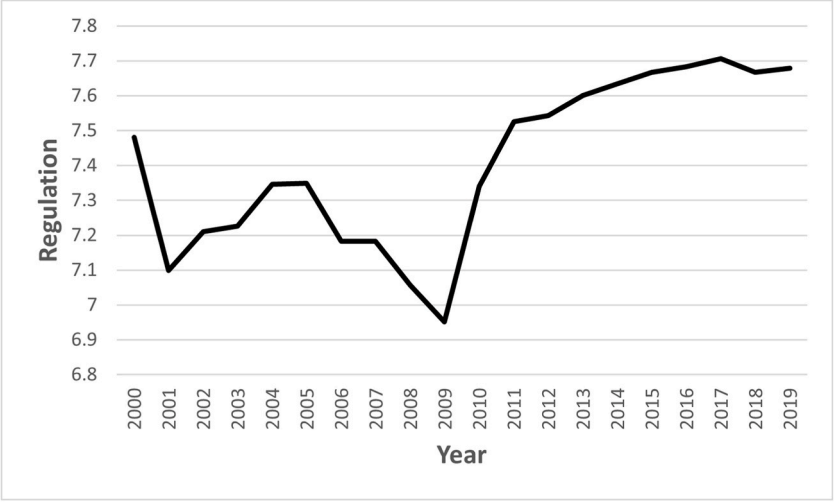


Fig. A5.

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