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Journal of Policy Modeling xxx (xxxx) xxx–xxx

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Social expenditure composition, inequality and growth in the OECD: Labour market policies are most effective

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Received 12 May 2023; Received in revised form 24 November 2023; Accepted 2 January 2024
Available online xxxx

Abstract

The literature on public social expenditure envisages a role for the composition of public social expenditure in the design of policies to reduce inequality and promote economic growth. However, there is a lack of empirical evidence on which to ground social policy decisions. This study contributes to filling this gap by investigating the dynamic interdependencies between nine different categories of social spending, inequality and growth in 36 OECD countries over the period 1995–2017. According to the results of our work, based on a PVAR model, achieving a decrease in inequality without decreasing output growth is possible, requiring a change in the composition of social policy that gives more weight to spending on old age and survivors' pensions, incapacity and family benefits, and active labour market policies, the latter having also a positive impact on growth. On the contrary, social expenditure on housing, as it has been conducted, appears to harm growth and enhance inequality.

JEL Classifications: E62; H53; I38; O11

Keywords: Social expenditure composition; Inequality; Growth; OECD; PVAR; Equity-efficiency trade-off

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https://doi.org/10.1016/j.jpolmod.2024.01.001

1. Introduction

The recent world health crisis stemming from the new SARS-CoV-2 virus raised concerns about future increases in inequality, as it disproportionally affected the most vulnerable, Brown and Ravallion (2020), besides questioning long-term growth prospects, Xiang, Tang, Yin, Zheng, and Lu (2021). Quick and strong social policy responses have been fundamental in containing the devastating social and economic outcomes of the pandemic, Cook and Ulriksen (2021). However, different compositions of social expenditure can result in variegated outcomes in terms of inequality and macroeconomic performance, Hur (2015), Kim and Kim (2017), Castro (2018), Cammeraat (2020). Thus, the issue is: How should governments allocate public social spending across various areas of social intervention to both lower the inequality in the distribution of income and promote economic growth?

The literature has not established a clear link between social expenditure composition, inequality and macroeconomic performance, and has seldom considered the interactions and feedback effects between these three dimensions. Identifying these linkages is key to good public social expenditure policy. The main aim of this study is to provide evidence that can act as a guide to social policy by identifying specific policies that produce effects on inequality and growth. Similar concerns have driven recent studies such as Heylen and Van de Kerckhove (2019) and Ghiaie, Auclair, and Noah Ndela Ntsama (2019) – who calibrate micro-founded models to study the effect of taxes on several macroeconomic outcomes such as inequality and output –, Gunasinghe, Selvanathan, Naranpanawa, and Forster (2020) – who estimate a SVAR model to study the effects of shocks to total public spending and total tax receipts on output and inequality –, Pak (2020) – who uses panel data to assess the impact of a welfare system reform on subjective wellbeing –, Papagni, Lepore, Felice, Baraldi, and Alfano (2021) – who use cointegrated analysis to estimate the impact of public investment on economic growth –, and Taylor (2022) – who estimated the impact on private consumption of the policy measures adopted in the USA to respond to the SARS-CoV-2 pandemic. Although the concern is similar, our focus and methodology are very different, as detailed next.

We first look at both theoretical and applied literature to obtain guidance on whether and how public social spending composition could be used to influence income inequality and economic growth. This leads to the specification of a Panel Vector Autoregressive (PVAR) model. We estimate our PVAR model and the associated impulse-response functions (IRFs) using annual data for 36 OECD countries over the period 1995–2017. The PVAR approach allows us to treat all variables as potentially endogenous and accommodate bidirectional relations between any pair of variables, as predicted by alternative theoretical views. See e.g. Bandara (2014), Imai, Gaiha, Ali, and Kaicker (2014), Acheampong, Dzator, and Savage (2021) for other examples of the use of PVAR models to evaluate the impact of, respectively, countercyclical policy tools, remittances and institutional quality on macroeconomic performance.

Existing theories and previous evidence suggest that social expenditure has the potential to influence both income inequality and economic growth, as summarized e.g. in the recent quantitative syntheses of the empirical literature carried out by Anderson, Jalles D′Orey, Duvendack, and Esposito (2017) and Awaworyi Churchill and Yew (2017). Income inequality has been on the rise in developed countries since the 1980 s, Nolan, Richiardi, and Valenzuela (2019). Policy responses, including fiscal policy and associated public social expenditure, may play a part in confronting inequality due to its redistributive nature. At the same time, social expenditure has the ability to affect economic growth through its influence on input availability and productivity, Atkinson (1995), Furceri and Zdzienicka (2012), Afonso and Jalles (2014). In

both cases, nevertheless, there is no consensus as to the sign of that influence, Sauer, Rao, and Pachauri (2023), Tridico (2018), Fournier and Johansson (2016). Additionally, inequality and economic growth are also potentially linked, with previous literature focusing on an equity-efficiency trade-off, i.e., the case where confronting inequality through social policy can only come at the cost of slower economic growth, Baumol (2007).

We contribute to the literature by disentangling the effects of different components of social expenditure and by linking two strands of empirical literature, on the inequality effects and on the growth impact of the composition of social expenditure. We focus our analysis on the nine social expenditure schemes for which the OECD Social Expenditures database provides data: old age pensions, survivors' pensions, incapacity-related benefits, health, family, active labour market policies, unemployment, housing, and other social policy areas. Given that many OECD countries are not in a position to increase public expenditure due to their high levels of indebtedness, it is important to understand which components of public social spending are effective in reducing inequality and fostering growth.

Our analysis is structured as follows. The next section provides a synopsis of existing theoretical perspectives and empirical evidence on the allocation of social expenditure to reduce inequality and foster growth. Section 3 outlines the PVAR framework used to model and test the effects of social policy choices on inequality and growth. Section 4 presents the results of the estimation of our model from the perspective of each type of social expenditure. Section 5 details the main conclusions.

2. The social expenditure composition-inequality-growth triangle

The research on the inequality and growth outcomes of social policy has concentrated on the ways in which total public spending shapes one or both of those dimensions. We know far less about how the composition of social policy contributes to those outcomes.

Concerning the interdependences between social expenditure and inequality, Niehues (2010) remarks that, since, by definition, social expenditure is a form of redistribution, one would expect it to result in a reduction of income inequality as it transfers income from richer individuals to poorer or temporarily disadvantaged ones, due for instance to illness or unemployment. However, social expenditure can influence not only the distribution of income after taxes and transfers, but also the distribution of market income (before taxes and transfers). For example, by promoting a greater and more egalitarian accumulation of human capital–namely through expenditure on health and education for the worse-off, as well as on family support and housing–, social expenditure increases productivity, and thus the labour income, of individuals (and households) with low incomes. These would otherwise not have the opportunity to invest in their human capital. In this example, social expenditure promotes greater equality in the distribution of market income as well. Other forms of social expenditure can likewise provide incentives for investing in human capital. This is the case of old age/retirement pensions and unemployment benefits, if their value is indexed to earnings, in turn linked to productivity; additionally, unemployment benefits (as well as active labour market policies) may enable workers to find new jobs where they are more productive. Nevertheless, Niehues (2010) draws attention to the possibility that social expenditure contributes to income inequality by introducing distortions and disincentives when economic agents make decisions. Niehues highlights the negative impact of social expenditure on labour supply that may arise from guaranteeing a minimum income, since this guarantee may lead individuals to work less. If the reduction in labour supply is greater for those with lower incomes, this will result in higher

inequality. Social spending can also provide a disincentive to the accumulation of human capital, workers' effort, willingness to change jobs, among others, again resulting in an increase in inequality.

As for the social expenditure-growth nexus, education and health spending may promote growth to the extent that they lead to the accumulation of human capital. Spending on policies which enable combining work and family and on active labour market policies can also result in more human capital accumulation. Other types of social protection expenditures are often regarded as having negative growth effects due to the perverse effect on incentives mentioned above (e.g. unemployment benefits discourage labour supply), although they can affect the incentives of workers to undertake long-term investments in skills when they are earnings-related, Estevez-Abe, Versen, and Soskice (2001). Population aging additionally implies that maintaining the old age pension systems currently available in most developed countries will lead to a rise in taxes with negative growth consequences. However, if these benefits are proportional to wages, they provide some guarantees to high-skilled workers that their investments in human capital will not be undermined when they retire, and may in this way promote growth. From a Keynesian perspective, social expenditure may act as an automatic stabilizer, reducing income losses and acting as a buffer that prevents stronger declines in demand and thus output, Furceri and Zdzienicka (2012). However, critics argue that the need to finance social expenditure introduces distortions in economic decisions because the taxes needed to finance social expenditure reduce economic efficiency and thus growth, Fournier and Johansson (2016)).

Finally, with respect to the link between inequality and growth, higher income inequality has been associated with the fear that it might compromise future growth since: (i) in more unequal societies the median voter demands higher government expenditure, which require higher taxes to finance it that in turn introduce distortions in economic decisions, namely regarding savings and investment, hindering economic growth, Persson and Tabellini (1994); (ii) credit market imperfections imply that only individuals that have enough collateral will be able to invest in human capital and so the more the economy is egalitarian, the higher the human capital accumulation, Galor and Zeira (1993), and; (iii) in more unequal countries social unrest is more likely, which hinders capital accumulation, Alesina and Perotti (1996). The opposing view argues that higher inequality provides the incentives to undertake the risks inherent to the innovation process, and also promotes higher effort by workers, resulting in faster growth. Additionally, higher inequality increases aggregate savings as the rich save a higher proportion of their income, and this will lead to higher capital accumulation and growth, Aghion, Caroli, and Garcia-Penalosa (1999), R. J. Barro (2000). Thus, policymakers may face an equity-efficiency/growth trade-off when it comes to policies related to social expenditure: higher social spending that reduces inequality (more equality) may come at the cost of less growth.

Besides those impacts of social policies on inequality and growth, our empirical model must also accommodate the possibility of endogenous interactions between social expenditure composition, inequality and growth. More unequal societies may demand more redistribution and thus higher social expenditure, while faster growth may provide additional resources to finance higher levels of social expenditure. Also, if the benefits of faster growth are shared by all, growth may lead to less income inequality.

It follows from the above discussion that the sign of the impact of social expenditure composition on inequality and growth is an empirical issue. Hur (2015), Castro (2018), Cammeraat (2020) and Muinelo-Gallo and Miranda Lescano (2022) contain some recent developments based on evidence for developed/high-income or OECD countries. The main

limitation of this prior research concerns differences in the components and level of aggregation of the social expenditure considered. Similar to the approach in this study, Hur (2015) uses a PVAR (besides estimating single equations) to investigate the interactions between social spending and both inequality and output in OECD countries. The estimated PVAR suggests public health spending, public education spending, and social subsidies and transfers have positive growth effects but negligible effects on inequality. Castro (2018) investigates whether the functional components of public expenditure and spending-driven consolidations impact growth, unemployment and inequality using a dynamic panel data least squares dummy variable estimator and a sample of 15 European Union countries. He finds that social protection expenditure cuts increase inequality and overall spending-driven fiscal austerity measures harm growth, especially cuts in education expenditure. Cammeraat (2020) finds a statistically significant and strong negative association between social expenditure on old age and survivors' pensions and social spending on family benefits and inequality in a sample of 22 EU countries (and the same applies to a sample of 32 OECD countries), using OLS and 2SLS. The impact of the components of social expenditure on output growth is positive for "housing and others", suggesting that social expenditure that is targeted at the poor is positively associated with output growth. Muinelo-Gallo and Miranda Lescano (2022) investigate the trade-offs between the equity and efficiency effects of cash transfers and direct taxes in high- and upper-middle-income countries through the estimation of a simultaneous equations model composed of a redistribution equation (the difference between the market and net-income Gini coefficients, absolute and relative measures) and a growth equation, with social spending (cash transfers) and taxes as the explanatory variables of interest. For social spending, the authors find a positive and significant redistributive effect for working-age cash transfers (income support for families, unemployment, disability and other public social transfers) with no impact on growth. On the contrary, old-age cash transfers (old-age plus survivors' pensions) imply an equity-efficiency trade-off.

3. Empirical model: methodology and data

The PVAR modelling approach posits that social policies, inequality and growth exist in a dynamic relationship: not only does social expenditure composition influences income distribution and long run macroeconomic performance, but the latter can also determine which and how social policies are subsequently implemented. Our implementation of the PVAR approach to social policy modelling closely follows Abrigo and Love (2016) and can be represented by equation (1):

$$y_{it} = \sum_{n=1}^{p} A_l y_{it-l} + \mu_i + \epsilon_{it} \quad (1)$$

where y_{it} is an m x 1 vector of endogenous variables, i identifies the cross-section units and t the time period. The error term ϵ_{it} has the usual properties and A_l (m x m, for $l = 1, 2, \ldots p$) is the coefficient matrix. The vector of variables, y_{it}, includes the log of real per capita GDP (*l_gdp*), the Gini index of income distribution (*gini*) and the disaggregated categories of social expenditure: active labour market policies (*almp*), family benefits (*family*), health (*health*), housing (*housing*), incapacity (*incapacity*), old age pensions (*oldage)*, survivors' pensions (*survivor*), unemployment (*unemployment*) and other social expenditures (*other*). We estimate two PVAR models which differ in the inequality measure used: the Gini index of disposable

(after taxes and transfers) income (*gini_disp*) or the Gini index of market (before taxes and transfers) income (*gini_mkt*).

Expenditures in the different areas of social intervention are measured as a percentage of GDP and come from the OECD Social Expenditure database, OECD (2019). The use of this dataset guarantees that the social expenditure data is comparable across countries and over time. As is common in empirical growth studies, we use real GDP per capita to compute our measure of economic growth as this is a good indicator of the standards of living of the population, see e.g. the pioneering work of R. Barro (1991), as well as recent work such as Moral-Benito (2010) and Crociata et al. (2020). The Gini index of inequality in the distribution of disposable (after taxes and transfers) or market (pre-tax, pre-transfer) income comes from Solt (2020), which uses data from the Luxembourg Income Study data. This database is known as the Standardized World Income Inequality Database (SWIID); see Ferreira, Lustig, and Teles (2015) for a critical appraisal of databases offering secondary data compilations on income inequality such as SWIID.

We are aware that inequality and growth are influenced by other variables, but our main goal is to investigate the endogenous interactions characterising social expenditure composition, income inequality and economic growth. This focus, together with the need to define a parsimonious model to limit the number of parameters to be estimated in each equation, led to an empirical approach based on a PVAR model that includes solely those three dimensions. Additionally, the choice of other co-variates involves a high degree of subjectivity given the many determinants of inequality and growth that have been investigated in the literature – see e.g. Furceri and Ostry (2019) and Moral-Benito (2010).

Data availability and the need for a balanced panel resulted in a data set covering 36 current OECD members observed yearly over the period 1995–2017. Colombia and Costa Rica are not included since data coverage for public social expenditure is very limited for most of the years. Table 1 contains summary statistics. On average, old age pensions are the component that weight the most in terms of GDP (6.7%), followed by health (5.3%), incapacity (2.1%), family (1.96%), survivors' pensions (0.9%), unemployment (0.8%), active labour market policies (0.49%), other social policy areas (0.47%) and housing (0.3%). Standard deviations are high and so is the difference between the maximum and minimum values of all the variables.

The dynamic structure of the equations that compose the PVAR model implies that fixed-effect estimation will suffer from the Nickell bias, Nickell (1981). To overcome this we follow

Table 1
Summary statistics.

Variable	Obs	Mean	SD	Min	Max	Median
l_gdppc	828	10.1844	0.7035	8.5015	11.6402	10.4023
gini_disp	828	31.0513	5.7595	21.9	50.8	30.7
gini_mkt	828	47.1849	4.1774	32.9	56.4	47.8
oldage	828	6.685	2.8592	0	14.499	6.508
survivor	828	0.9195	0.7487	0	2.713	0.7005
incapacity	828	2.1808	1.1685	0	5.897	2.148
health	828	5.2686	1.5772	0	8.864	5.4055
family	828	1.9631	0.9755	0	4.089	1.8975
almp	828	0.4902	0.4251	0	2.299	0.3715
unemployment	828	0.7876	0.7369	0	3.816	0.5655
housing	828	0.3106	0.3289	0	1.717	0.197
other	828	0.4718	0.4457	0	3.26	0.369

Arellano and Bover (1995) and use forward orthogonal deviations to eliminate fixed effects from the model. The PVAR model is estimated as a system of equations by applying the Generalized Method of Moments (GMM) procedure using the lags of the untransformed variables as instruments for the transformed variables. To choose the order of the PVAR, as well as the number of lags of the untransformed variables used as instruments, we apply a modified version of the Bayesian Information Criterion (BIC) proposed by Andrews and Lu (2001). The latter is based on Hansen's J statistic, thus requiring overidentification, i.e. our models will use as instruments a number of lags that is higher than the lag order of the PVAR model. The criterion to select both the order of the PVAR model and the lag order of the instruments is the consistent moment and model selection criteria (MMSC) version of the BIC. The order of the PVAR model is chosen by minimizing the value of the MMSC among the models for which we do not reject the null hypothesis of the overidentification test.

We also performed the panel unit root tests proposed by Maddala and Wu (1999) and Pesaran (2007) for the levels and first differences of the variables considered in our PVAR models. The first of these tests is a nonparametric version of an extension to panel data of the common Augmented Dickey-Fuller (ADF) unit root test from the time series literature. The Pesaran (2007) test is a second generation panel unit root test which is robust to some of the most common variants of cross-sectional dependence. The tests were performed considering 1 and 2 lags (since we use annual data), both with and without a trend. The results obtained lead us to specify our PVAR models in first differences since they point to the variables being integrated of order one *I(1)*.

4. Results and analysis

According to the results of the moment and model selection criteria applied to select both the order of the PVAR model and the lag order of the instruments, the appropriate PVAR and instrument lag orders are 1 and 4, respectively, when the Gini index measures inequality in disposable income. When the Gini index measures inequality in market income, the same criterion indicates the lag orders 2 and 4, respectively. Recall that the selection criterion chooses the order-lag combination which minimizes the MMSC among the combinations that do not reject the null of the overidentification test (J test) at the 10% significance level.

The PVAR approach allows us to test for the existence of Granger-causality among each pair of variables; this provides an initial assessment of the existence of interrelations between the social expenditure composition, inequality and growth, as discussed in the previous section. Table 2 contains the results of the Granger-causality tests for the two PVAR models estimated (one with inequality in disposable income and the other with inequality in market income). Given the focus of this paper and to save space, we report only the Granger-causality tests regarding the equations of GDP and inequality. Nevertheless, one interesting pattern that seems to emerge from those tests is that social expenditure reacts more to inequality in market outcomes than to inequality in disposable income. Another conclusion from those tests is that the social expenditure categories are all Granger-caused by GDP.

Let us now turn to the results reported in Table 2. The results reported in Table 2 indicate that almost all the social spending categories considered Granger-cause GDP growth when inequality concerns disposable income. However, when inequality concerns market income only health, family, ALMP and housing maintain statistical significance. Social spending components also tend to Granger-cause inequality; the exceptions are old age and survivors' pensions, as well as incapacity benefits. According to Table 2, GDP growth Granger-causes

Table 2
Granger-causality tests.

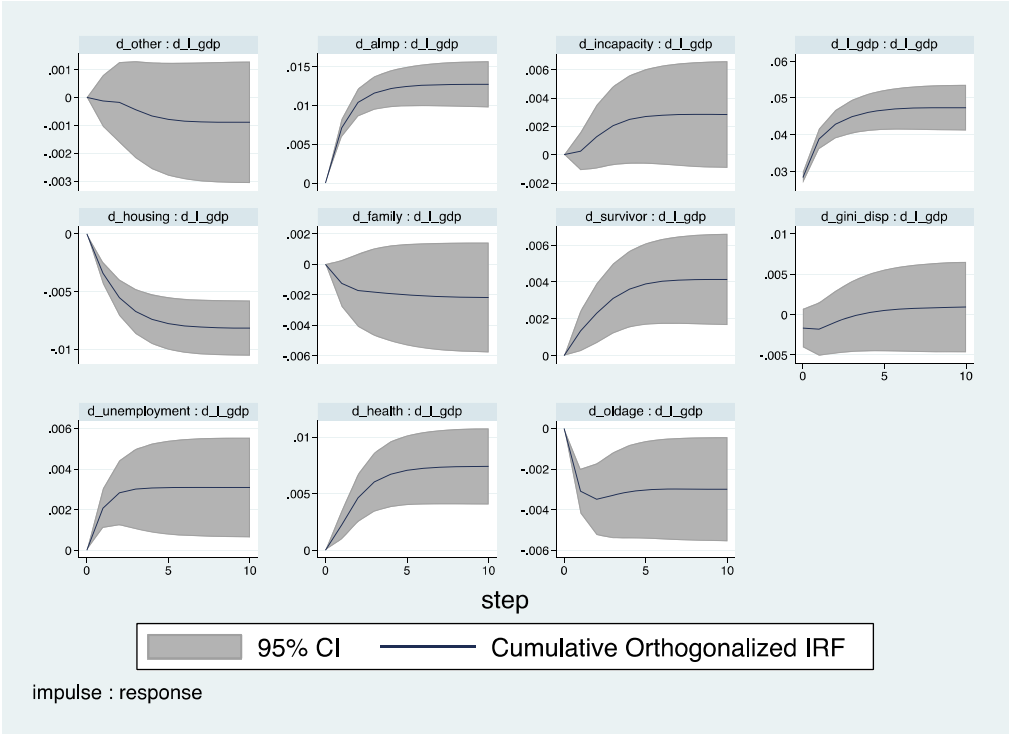
		PVAR model with inequality in			
		disposable income		market income	
	Effect:	GDP	Gini	GDP	Gini
Cause:					
	GDP	NA	0.000	NA	0.000
	Gini	0.864	NA	0.000	NA
	Social expenditure:				
	Old age	0.000	0.710	0.140	0.000
	Survivor	0.289	0.112	0.129	0.970
	Incapacity	0.008	0.113	0.328	0.428
	Health	0.039	0.000	0.019	0.000
	Family	0.008	0.000	0.067	0.021
	ALMP	0.000	0.000	0.000	0.000
	Unemployment	0.000	0.058	0.104	0.000
	Housing	0.000	0.533	0.000	0.000
	Other	0.801	0.000	0.063	0.003
	All	0.000	0.000	0.000	0.000

Notes: The first two columns of numbers concern the PVAR model in which the Gini index measures inequality in disposable income. The last two columns concern the PVAR model in which the Gini index measures inequality in market income. All the variables are first-differenced. The table shows the p-values for the Granger causality tests corresponding to the variables in the rows Granger-causing the variables in the columns with H0: variable X does not Granger-cause variable Y. For example, the cell in row "Old age" and column GDP gives the p-value of the test that public social expenditure with old age pensions Granger-causes GDP growth. Row "All" reports the p-values for the null hypothesis that all the coefficients of the lagged variables are zero in the equation for the variable in the column.

both measures of inequality, but market income inequality Granger-causes GDP growth, while disposable income inequality does not. These results confirm the existence of interrelations between social expenditure, GDP growth and inequality.

To obtain an indication of the direction and persistence of those interrelations, next we estimate impulse-response functions (IRFs). These provide an estimate of the impact of a shock to one variable on another variable, while keeping all other shocks equal to zero, thus providing additional information relative to the Granger-causality tests in terms of the signs and the timing of the effects exerted by shocks. If the eigenvalues of the companion matrix to the coefficient matrix all lie within the unit circle, the non-cumulative IRFs will converge to zero, i.e. the impact of a shock will eventually disappear. This condition checks out for all models, corroborating the assumption that the variables (all of them first-differenced) are all stationary. Nevertheless, to assess the impact that a shock to one variable will have over time on the level of a target variable we will centre our analysis on cumulative IRFs.

We use the Choleski decomposition to orthogonalize the shocks when computing the IRFs. This process can make the conclusions dependent on the ordering of the variables, and thus the ordering should consider how the variables are likely to behave. Namely, the variables should be ordered with the slowest moving variables first and the fastest moving variables last – see for instance L. J. Christiano, Eichenbaum, and Evans, Chap. 2) (1999) and L. Christiano, Eichenbaum, Evans, and L (2005). Based on this criterion the order of the variables in our PVAR models is the Gini index, growth and old age, survivors, incapacity, health, family, active labour market policies, unemployment, housing and other social policy areas. Given that fiscal policy may have a relatively long implementation lag, one may argue that GDP moves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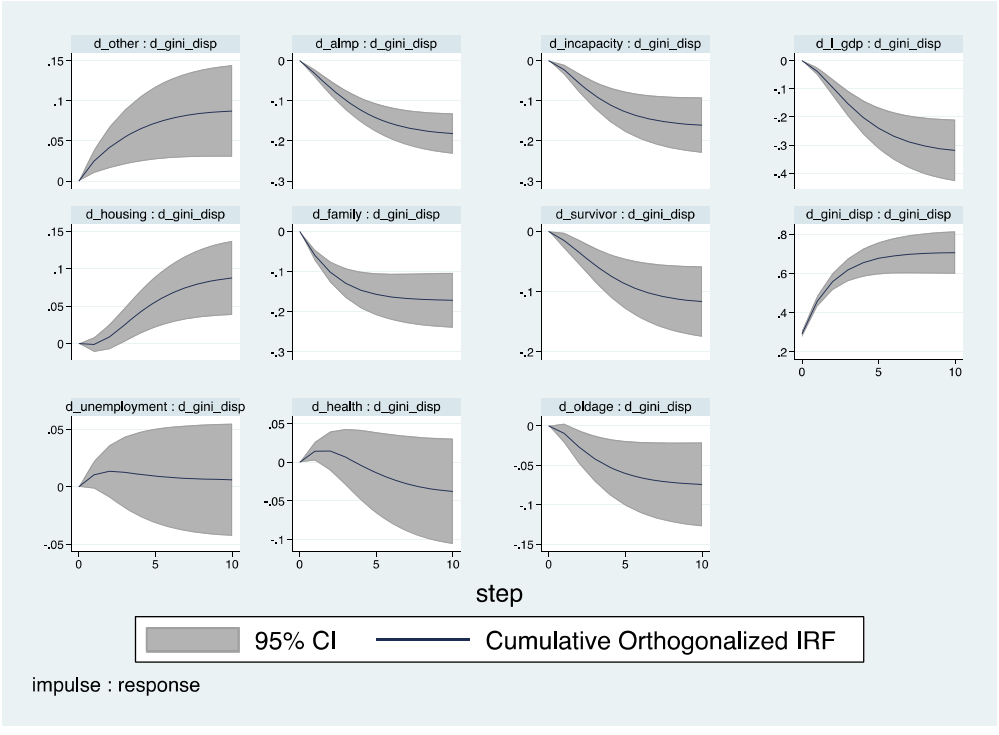
95% CI
Cumulative Orthogonalized IRF
impulse : response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d_family : d_gini_disp
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d_gini_disp : d_gini_disp
d_unemployment : d_gini_disp
d_health : d_gini_disp
d_oldage : d_gini_disp
step
95% CI
Cumulative Orthogonalized IRF
impulse : response

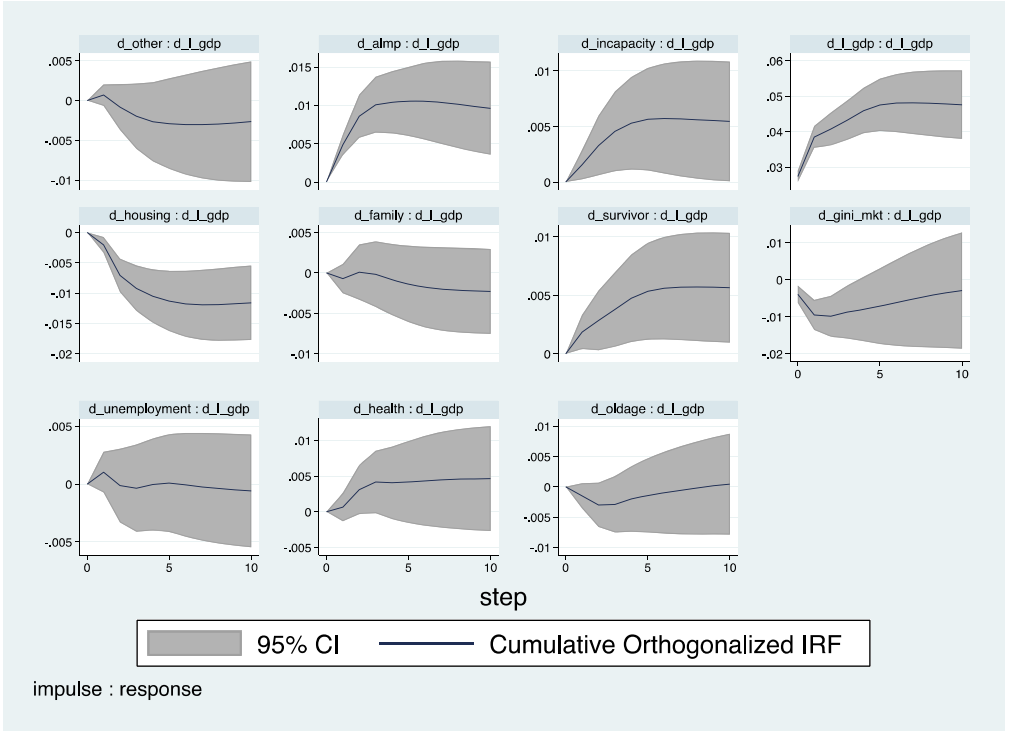
Figure 1. IRFs - PVAR model with inequality in disposable income. Notes: CI refers to the 95% confidence interval obtained using Monte Carlo simulation.

faster and thus should be placed last. As a robustness check we estimated the IRFs of PVAR models with this alternative ordering – the conclusions are essentially the same as those reported below (relevant exceptions will be noted). We also experimented alternative orderings of the social expenditure components; in this case we observed only very slight differences in the IRFs.

Figure 1 presents the estimated IRFs for our PVAR model with the Gini index of disposable income, while Figure 2 presents the IRFs for the PVAR model with the Gini index of market income. These two sets of IRFs display both differences and similarities. In both cases, there are some categories of social spending that have a (statistically significant) positive impact on GDP, and other categories that have a (statistically significant) negative impact. However, the categories for which the estimated impact is positive (or negative) are not exactly the same in the two PVAR models. Among the categories for which the estimated impact is positive, the result appears to be robust to the specification of the PVAR in the case of active labour market policies and survivors' pensions. However, when the ordering of the variables in the PVAR is changed so that GDP comes last (as mentioned above), the result for survivors' pensions disappears – thus, we do not take the preceding conclusion regarding survivors' pensions as a robust result, contrary to the result for active labour market policies. Concerning the categories for which the estimated impact on GDP is negative, the result appears to be robust only in the case of social expenditure on housing.

The IRFs in Figures 1 and 2 also report the responses of the two alternative measures of inequality to the shocks in the PVAR models. Four categories of social expenditure have a (statistically significant) positive impact on market income inequality (i.e. an increase in expenditure on those categories leads to an increase in the Gini index of market income inequality): old age, health, housing and "other". This result suggests that social spending on these categories has a disincentive effect (recall the discussion in section 2) that negatively affects market outcomes. The IRFs in Figures 1 and 2 also suggest that the disincentive is stronger than the redistribution effect for social spending on housing and "other", while in the case of expenditure on health and old age pensions the redistribution effect at least compensates for the disincentive effect. Concerning the remaining social spending categories, a special mention should be made of active labour market policies: this is the only case where an increase in social expenditure leads to a decrease in both market and disposable income inequality. Some of the other categories also appear to be associated with a decrease in disposable income inequality, but not in market income inequality (family and incapacity benefits, and old age and survivors' pensions).

Another result worthy of mention is that a positive shock to GDP growth is estimated to lead to a decrease in disposable income inequality (and to have no impact on market income inequality). This result may already be reflecting the redistributive effect of taxes and transfers associated with the additional income generated when GDP grows. It may also reflect some "trickle-down": when rich people invest and contribute to the growth of GDP and of their own wealth, poorer people also see their living standards rise. Finally, the IRFs suggest that shocks to inequality do not impact GDP (in a statistically significant way), at least over a longer horizon (in the short term, an increase in market income inequality appears to lower GDP). Therefore, one may not say that inequality per se is good for growth, and neither that it is bad. In this sense there is no equity-efficiency trade-off, nor is there a virtuous relation between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d_l_gdp : d_l_gdp
d_housing : d_l_gdp
d_family : d_l_gdp
d_survivor : d_l_gdp
d_gini_mkt : d_l_gdp
d_unemployment : d_l_gdp
d_health : d_l_gdp
d_oldage : d_l_gdp
step
95% CI
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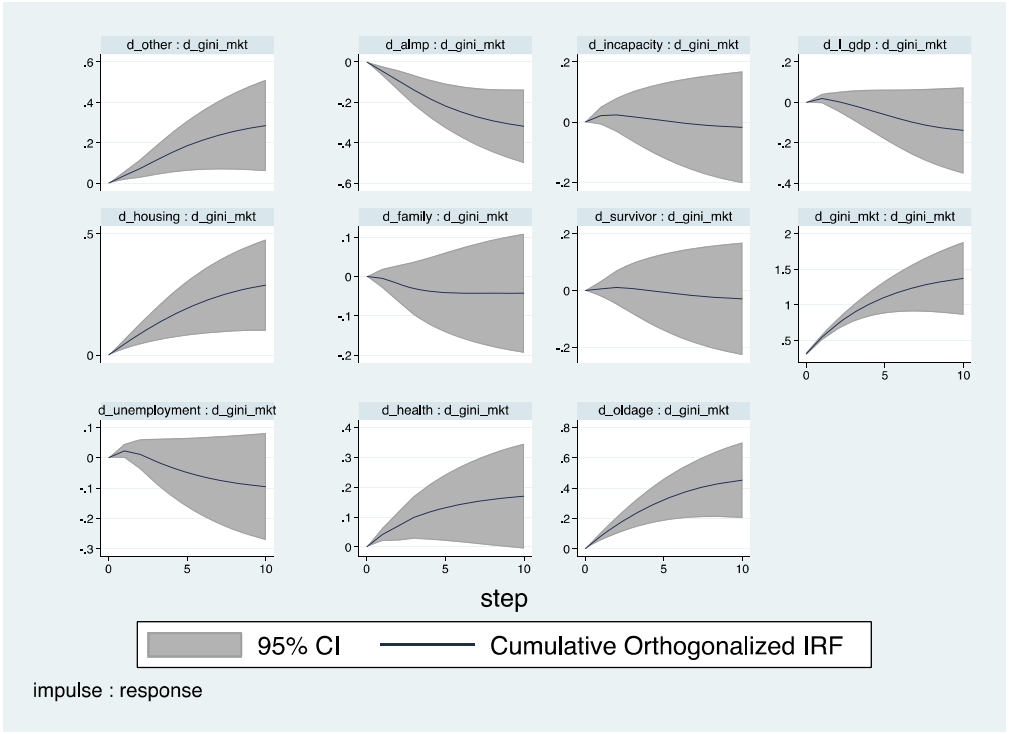
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d_almp : d_gini_mkt
d_incapacity : d_gini_mkt
d_l_gdp : d_gini_mkt
d_housing : d_gini_mkt
d_family : d_gini_mkt
d_survivor : d_gini_mkt
d_gini_mkt : d_gini_mkt
d_unemployment : d_gini_mkt
d_health : d_gini_mkt
d_oldage : d_gini_mkt
step
95% CI
Cumulative Orthogonalized IRF
impulse : response

Figure 2. IRFs - PVAR model with inequality in market income. Notes: CI refers to the 95% confidence interval obtained using Monte Carlo simulation.

efficiency and equity (at least one that runs from equity to GDP; as mentioned above, shocks to GDP decrease disposable income inequality, a result that appears to be due to the redistributive effect of taxes and transfers).

5. Conclusion

This study explores the dynamic linkages between different types of social expenditure, inequality (before and after taxes and transfers) and economic growth across a panel of 36 OECD countries over the period 1995–2017. Our study is based on a PVAR model estimated using a GMM approach. The results confirm the view that the links between social expenditure, inequality and growth depend on the type of social expenditure under analysis: some categories of social expenditure do not appear to significantly affect inequality and/or growth, while others appear to affect them in one direction and others yet appear to affect them in the opposite direction.

We estimated two versions of the PVAR model. In one version inequality is measured by the Gini index of disposable income, while the other uses the Gini index of market income. Estimating these two versions of the PVAR model allows us to identify robust results regarding the relation between social expenditure categories and GDP, and also to distinguish between the impact of each type of social expenditure on market income inequality and the impact on disposable income inequality. The latter feature is important in the context of the controversy concerning the potentially opposing effects of social expenditures on income distribution: on one hand there is a redistribution effect that should decrease inequality, on the other hand there may be a disincentive effect (namely on labour supply) operating in the opposite direction.

In this respect, our results suggest several conclusions. First, in terms of country-level inequality and output, active labour market policies are the most commendable category of social spending. Spending on active labour market policies appears to contribute both to higher output and to lower inequality, both before and after taxes and transfers. Therefore, active labour market policies seem to have contributed to improving efficiency in the labour market, with positive consequences on both GDP and inequality. Second, public spending on housing appears to represent the opposite extreme: public spending on housing appears to be detrimental both to GDP and to equity. It appears that these expenditures distort the behaviour of markets, namely by acting as a disincentive to labour supply, leading to a lower GDP and higher inequality, both before and after taxes and transfers. In other words, in the case of social expenditure on housing, the disincentive effect exists and is stronger than the redistribution effect.

Third, the disincentive effect also exists for other categories of social expenditure, with different relations with the redistribution effect: disincentive effect exists for old age pensions (weaker than the redistribution effect), health (compensated by the redistribution effect), and "other" social expenditures (stronger than the redistribution effect). Fourth, in the case of survivors' pensions and incapacity and family benefits, social spending decreases inequality without displaying a disincentive effect. Finally, positive shocks to GDP growth decrease disposable income inequality, but shocks to inequality do not appear to affect GDP, at least beyond the short term. Thus, our results do not favour neither the equity-efficiency trade-off, nor the existence of a virtuous relation between equity and efficiency.

The main policy implications of our work are as follows. Active labour market policies (as they have been used in our sample) appear to offer a Pareto improvement in terms of equity and efficiency: they contribute to increasing output and decreasing inequality. Other categories of social spending have a neutral impact on GDP and a positive effect on equity: old age and survivors' pensions, and family and incapacity benefits. If the goal is to reduce inequality, those are the categories to favour. Active labour market policies have an additional benefit in terms of output, but since those social spending categories are targeted at different segments of the population, the best policy will be a mix of them. On the other hand, social expenditure on housing appears to have amounted to a failure: it has led to lower output and to higher inequality.

Policymakers must in any case not forget that simply reallocating expenditure may not have the intended consequences – the details of the implementation may matter for the actual result of such a reallocation. There is also a case to be made for incorporating a public finance perspective. Our approach is limited to the extent that it does not examine the mechanisms of transmission from social expenditure composition to inequality and growth. In any case, it paves the way for future studies that dig into the whys of the varied results found for the components of social expenditure.

Funding

This work was supported by COMPETE 2020, Portugal 2020 and the European Union under Grant number POCI-01–0145-FEDER-029365; and Fundação para a Ciência e a Tecnologia I.P./MCTES under Grant number PTDC/EGEECO/ 29365/2017 and Grant number UIDB/ 05037/2020.

Data availability

The data used in this study was collected from publicly available sources and are available from the corresponding author upon request.

Acknowledgements

We thank the editor and external referees for their insightful and detailed comments on a previous version.

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