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Social Spending, Inequality and Growth in Times of Austerity: Insights from Portugal

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Abstract

This paper discusses the possibility that the austerity measures implemented in Portugal, that translate into a reduction of the respective welfare state, can not only hamper short term economic recovery but also compromise long-run macroeconomic performance, based on their impact on income inequality. We estimate a near-VAR model with social spending, inequality and output and perform impulse response analysis over the period 1980-2013 to investigate whether the recent expansion of the Portuguese welfare state constituted an obstacle or an opportunity for this country’s macroeconomic performance. Our results point to social spending as an expansionary fiscal policy instrument that can alleviate the downturn in output in the short-term. The long-term role of social spending is less clear due to its ambiguous effect on overall income inequality. We conclude that more important than the insufficient increase in social benefits due to fiscal consolidation efforts seems to be the need to carefully target social support so that there is no equity-efficiency trade-off.

Keywords: social spending, inequality, economic growth, Portugal, VAR

JEL Classification: H53; O40; O52; P16

1. Introduction

The recent evolution of the Portuguese economy has been strongly affected by the austerity policies recommended by the Troika (the IMF, the European Central Bank and the European Commission) following the sovereign debt crisis, which resulted in Portugal agreeing to a bailout programme in May 2011 and exiting the three year Economic Adjustment Programme in June 2014. The need to reduce the deficit and public debt are the main objectives that have underpinned austerity policies and have brought the welfare state to the forefront of the debate on Government retrenchment, in order to guarantee that it is possible to overcome the threat of insolvency or defaulting. However, the fiscal consolidation path might not allow for a proper debate on the future of the Portuguese social model. In a period of sovereign debt crisis, austerity and the associated cuts in social spending seem almost inevitable. A fundamental issue, however, is whether it has associated a rescaling and reorganization of the Portuguese welfare state that will increase inequality of opportunities in a country that ranks as having one of the most unequal income distributions in Europe, which in turn can aggravate further the already dismal long run growth prospects.

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1 In 2013, according to the Eurostat, Portugal recorded a government deficit of 8.1 per cent of GDP and government debt stood at 129.0 per cent of GDP.

2 According to the Eurostat, between 2004 and 2013, Portugal has always occupied one of the top four positions in terms of the Gini coefficient ranking, with values persistently higher than the EU27 average.
From a long-run macroeconomic perspective, some argue that social spending should be contained as the welfare state makes economies less productive and competitive, and thus hampers economic growth since its funding consumes scarce resources and introduces distortions in economic activity through disincentives embedded in the structure of the welfare state. Yet other authors call our attention to the fact that welfare state interventions have the potential to generate economic externalities that can outweigh their distortions (see Atkinson (1995); Mares (2007)). An important argument in favour of an extensive welfare state is based on the positive role that less inequality may have on economic growth (see Aghion et al. (1999); Barro (2000)). A permanent reduction in social spending due to the current austerity measures can not only make short run economic recovery more difficult in Portugal but also prevent this country from resuming a sustained growth process, based on its impact on inequality, in turn risking that economic difficulties in the most disadvantaged groups become entrenched.

This paper investigates the dynamics among social spending, income inequality and output per capita over the period 1980-2013 for Portugal. The main aim is to examine whether the expansion of the Portuguese welfare state constituted an obstacle or an opportunity for its macroeconomic performance highlighting income inequality as the potential mechanism that connects the two variables. We focus on the recent experience of a country that has gone through important transformations in the scale and structure of the respective social model but seems to be stuck in a high inequality, no growth situation. Other southern European countries show similar patterns in terms of social spending, income inequality, and macroeconomic performance, and so this analysis can also provide important insights in terms of these other economies situation.

The paper is organized in two sections, besides the introduction. Section 2 presents the data and methodology and discusses the results. Section 3 contains the main conclusions.

2. Data, methodology and results

We apply econometric time series analysis techniques to examine the relationship between welfare state expansion, macroeconomic performance, and inequality in Portugal. In particular, we estimate near-Vector Auto-Regressive (VAR) models with annual data for the period 1980-2013.3

Our database consists of three variables: output (real GDP per capita at constant prices, US$ constant PPPs), where $Y$ is the notation for the logarithm of output; the GDP ratio of total public social expenditures, henceforth social expenditures, for short, whose notation is $SE$; and an income inequality indicator. The first two variables are from the OECD database. The variable concerning income inequality corresponds to the Gini coefficient of equivalent disposable income from the CANA database, Castellacci and Natera (2011), for the period 1980-2008. For the years 2009 to 2013 we used the Gini coefficient of equivalent disposable income from the EU SILC database, Eurostat, to obtain the missing values by regressing the series from the CANA database on the Gini coefficient from EU SILC. We called this variable $Gini_1$.

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3 We estimate a country-specific model in a VAR-framework with all variables treated as endogenous, which avoids the often arbitrary classification, within a growth framework, of variables as endogenous or exogenous, and the imposition of restrictive specifications on the dynamic adjustment mechanisms inherent in the structural approaches, such as those associated with the estimation of cross-country growth regressions. An impulse response analysis is used to determine the sign of the association between two variables. To guarantee enough degrees of freedom in small samples we keep only the appropriate lags of the dependent variables in each equation, which is known as a near-VAR model.
The series used, as well as the growth rate of real GDP per capita, are depicted in Figure 1. Prior inspection of the income inequality data reveals an upward trend for the Gini coefficient considered in the analysis in Portugal over the period 1980-2013. In the more recent years, the Gini_1 started to decrease in 2006 but this inversion comes to a halt in the years 2010-2011. Social expenditures present a positive trend in the Portuguese economy confirming that welfare state expansion proceed at a fast pace, especially since the late 1980s, which is not surprising given its low initial values. Finally, as far as real GDP per capita is concerned, Figure 1 shows an increase until around the early 2000s, when Portuguese output began to stagnate and even recorded negative growth rates in 2009-2013, with the exception of 2010.

VAR models are a suitable framework to model interdependent variables as is the case in this study. Our main assumption is that public social expenditures affect inequality, which in turn influences growth. However, just as social policies might be thought of as a mechanism to reduce income inequality, they might also be determined by inequality levels (Niehues (2010). Furthermore, as a country becomes richer it tends to spend more in social protection. Changes in inequality may also be related to economic changes, as analysed by Kuznets (1955). In a VAR model all variables are considered as potentially endogenous.

A VAR model of order $p$ can be represented by:

$$X_t = A_1 X_{t-1} + ... + A_p X_{t-p} + \mu_t$$  \hspace{1cm} (1)$$

where $X_t$ is a vector of $k$ variables ($Gini_1$, $Y$ and $SE$, in our case); $A_i$, $i=1,...,p$ is the coefficient matrix; $\mu_t$ a vector of order $k$ with expected value $E(\mu_t) = 0$ and the covariance matrix $E(\mu_t; \mu_t^T) = \sum_p$ is time invariant positive definite.

To reduce the over-parameterization problem that afflicts VAR models we applied a procedure to reduce the number of parameters to be estimated, which corresponds to estimating a near-VAR model. First, to define a parsimonious VAR model we applied the Akaike information criterion (AIC) to determine the number of lags associated with a minimum loss of information.
of the model. The specification of the near-VAR model implies the choice of the number of lags for each variable to keep in the different equations. We chose not to keep the lags for which we are not able to reject the null hypothesis that the respective estimated coefficient is equal to zero at a standard confidence level. In practice, this corresponds to ignore all the variables for which the estimated coefficients presented a t-statistic smaller than 2.0. Finally, we applied a likelihood ratio (LR) test having as a null hypothesis that the coefficients of the variables excluded from our VAR model are jointly equal to zero, following Pfaff (2008b), Pfaff (2008a), Kim (2014b) and Kim (2014a).

We considered that social expenditures are contemporaneously affected by their own structural innovation, that output is contemporaneously affected by structural innovations to output and social expenditures and, finally, that inequality is contemporaneously affected by structural innovations in all the other variables in the model. Accordingly, we estimated VAR models with inequality, output and social expenditures variables in this order.

Finally, as far as the estimation technique is concerned, Ordinary Least Squares provides efficient estimates of VAR models but not of Near-VAR models. To obtain efficient estimates of the coefficients of the latter models we have to apply the Seemingly Unrelated Regressions (SUR) technique, Zellner (1962) and Enders (2004), p. 281. If the cross-correlation between residuals is, in absolute value, greater than 0.2 then the correlation is significant at conventional levels (Enders (2004), p. 277) and the impulse-response profiles are sensitive to the order of the variables in the near-VAR model. So, as a rule-of-thumb, a value for this correlation smaller than |0.2| is a good indicator of the robustness of the impulse-response estimations applied later on.

Table 1 identifies the variables (with respective lags) retained in the near-VAR model where an ‘x’ means that the variable was retained and a ‘0’ that it is was excluded from the equation. The numbers in the first column correspond to the equation of the model. The LR test is calculated to test the null hypothesis that the coefficients of the lags of the variables not retained in the model (thus with a ‘0’ in the table) are jointly equal to zero. The associated p-value corresponds to the bootstrap p-value, Kim (2014). The values in the following column correspond to the maximum value of the correlation coefficient between the residuals of the equations in the model. According to the results presented in Table 2, it is never possible to reject the null hypothesis that the coefficients of the variables excluded from our VAR model are jointly equal to zero so we retain the associated near-VAR model. Thus, the first equation in the near-VAR model (Eq.1) that considers Gini_1 as the dependent variable retains as explanatory variables Gini_1 lagged one period, output lagged three periods and social expenditures lagged two periods. The second equation (Eq.2) that considers Y as the dependent variable retains as explanatory variables Gini_1 lagged three periods, output lagged one and two periods and social expenditures lagged one and two periods. Finally, the third equation (Eq.3) that considers SE as the dependent variable retains as explanatory variables Gini_1 lagged three periods, output lagged three periods and social expenditures lagged one and three periods. Additionally, the values of the maximum coefficient of correlation between the residuals is always quite small indicating that the impulse-response analysis we carry out next is valid and that the results concerning the cross influence of the variables are robust. The last two columns of Table 1 present the values of the LM test for serial correlation of order one in each equation of the model.

4 The AIC provides a way of determining which model among a set of competing models presents the best goodness of fit and minimum information loss and thus provides a means for model selection. The model with the lowest AIC is considered as the best model among all models specified for the data used. In this case we are selecting among VAR models with different lag lengths. See Akaike (1973) and Lütkepohl (2004), p. 111, for an extension to VAR models.

5 In models that consider lags of the dependent variables a Lagrange Multiplier (LM) test, also known as a Breusch-Godfrey test, is an appropriate test for the null of no serial correlation among the residuals against the alternative that there is serial correlation of some order, Breusch (1979) and Godfrey (1978).
model and the respective $p$-values of the chi-square distribution with one degree of freedom. The results indicate that we cannot reject the null hypothesis of absence of serial correlation in the equations in our model.

Table 1  

<table>
<thead>
<tr>
<th>Near-VAR model and explanatory variables</th>
<th>LR $p$-value</th>
<th>Max$_C$</th>
<th>LM-AR1 $p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gini$_1$ Gini$_1$ Gini$_1$</td>
<td>Y Y Y</td>
<td>SE SE SE</td>
<td>15.16 0.83 -0.07</td>
</tr>
<tr>
<td>Eq.1</td>
<td>x 0 0</td>
<td>0 0 x</td>
<td>0 x 0</td>
</tr>
<tr>
<td>Eq.2</td>
<td>0 0 x</td>
<td>x x 0</td>
<td>x x 0</td>
</tr>
<tr>
<td>Eq.3</td>
<td>0 0 x</td>
<td>0 0 x</td>
<td>x 0 x</td>
</tr>
</tbody>
</table>

Notes: Equation 1 considers Gini$_1$ as the dependent variable. Equation 2 considers $Y$ as the dependent variable. Equation 3 considers $SE$ as the dependent variable. An ‘x’ means that the variable was retained and a ‘0’ that it was excluded from the equation. LR is the likelihood ratio test statistic having as the null hypothesis that the coefficients of the variables not retained in the near-VAR model are jointly equal to zero with the corresponding $p$-value in the next column. Max$_C$ is the maximum value of the correlation coefficient between the residuals of the equations in the model.

Based on the results from the near-VAR model, the interdependence between the variables can be quantified by means of impulse-response analysis. The impulse response analysis shows how a shock to one of the endogenous variables of the model affects the contemporaneous and future values of all endogenous variables in that same model. We have used Gibbs sampling to estimate the impulse-response functions for the near-VAR model. The results are shown in Figure 2. Our analysis always takes into account the values of the shocks within the respective confidence interval. If zero belongs to the confidence interval we cannot reject the null hypothesis of no impact for those estimates.

Figure 2  

Response of the impulse–response analysis
The general picture that emerges from the analysis of the different shocks (Figure 2) is that the respective impact lasts for quite a long time after the shock, although the quantitative effect is not very large. The highest impact recorded is on social expenditures, following a shock to output, with a 1 per cent shock to output producing an increase of 0.3 per cent in the social expenditures GDP ratio after fourteen years.

Figure 2 provides information on the signs of the impact of shocks to each of the three variables under analysis in the Portuguese economy and thus evidence on which of the theoretical predictions on the effects of inequality on growth apply to this country. Concerning the influence of inequality on output behaviour, according to the results presented in Figure 2 an inequality shock has a positive influence on output two years after the shock occurs that increases steadily until around year 5 and stabilizes thereafter. The positive impact of inequality on output behaviour obtained is consistent with three main theoretical arguments: (i) since rich people have a higher savings rate, a more unequal country will experience faster growth, if the investment rate is positively related to the savings rate; (ii) if the creation of new activities faces important sunk costs and investment indivisibilities then wealth concentration, and thus more inequality, will favour growth; and, finally, (iii) work incentives are stronger in more unequal societies. This is also consistent with the idea that Portugal is in a stage of development when physical capital accumulation is the most important driver of economic growth and has not yet been replaced by human capital as the prime engine of growth (Galor and Moav (2004), but it is also compatible with the argument that in knowledge based societies a concentration of talented and skilled individuals at the top end of the income distribution is also conducive to technological progress, and therefore to growth, since these individuals will want to benefit from the higher returns of their skills. Another possible explanation has to do with the fact that we are using the Gini coefficient to measure income inequality, which captures overall inequality in the income distribution, but different transmission mechanisms can be in place depending on what happens to inequality at the different parts of the income distribution. As Voitchovsky (2005) showed, it can be the case that top end inequality positively influences growth and at the same time the influence of bottom end inequality is negative.

What about the question of whether a more generous welfare state is related to more equality in the distribution of income? To answer this question we have to examine the effects of a shock to social expenditures on inequality (Figure 2). Although the initial impact is zero, two periods after it occurs the shock indeed reduces inequality, for two periods, then the impact becomes positive for four periods, and again returns to negative values for four periods. These results suggest that more social spending does not reduce inequality levels in Portugal very effectively, which is not surprising given the behaviour of the Gini coefficient in Figure 1. However, to better understand the behaviour of the response from inequality to a social expenditures shock we have also to take into account the influence of a shock to social expenditures on output: the effect is positive during the first seven periods, after which we cannot exclude the null of no effect. This result points to the existence of a social spending multiplier and it is this positive effect on output that can help explain the behaviour of inequality. Initially, a shock to social expenditures reduces inequality but since it also has a positive effect on output, which in turn impacts positively on inequality (see Figure 2, second column), eventually we will have an increase in inequality that is only reversed when the effect of a shock to social expenditures on output begins to slowdown. The ambiguous impact of social expenditures on inequality may also result from negative behavioural responses which are induced by redistributive social policies and offset the initial inequality decreasing impact of social spending expansion. In any case, the results point to a direct positive short-term effect of social spending on output, in line
with the results of Furceri and Zdzienicka (2012) for a panel of OECD countries from 1980 to 2005 that find that an increase of 1 per cent in social spending increases GDP by about 0.1 percentage points, corresponding to a multiplier of about 0.6, and so social spending can have an important role in promoting short-term economic recovery in Portugal.

A final question we wanted to answer in this paper concerned the identification of a link between social spending and growth through the former’s impact on income inequality. Is it the case that higher social spending, by reducing income inequality, is harmful for growth in Portugal since we obtained a positive impact on output of an inequality shock? Given the small and volatile impact of a shock to social expenditures on inequality, and the cross influences on output, we believe that it is not possible to give a definite answer to this question without further investigation. For one, the evidence suggests that Portugal is in a stage of development when the benefits of growth have not yet trickled down across society, with increases in output leading to a rise in inequality that may offset the effect of an increase in social spending on the Gini coefficient. In fact, our results show that a shock to output has a positive and lasting effect on inequality, even though it starts to weaken towards the end of the forecast period. On the other hand, the positive impact on output behaviour of overall income inequality, measured as the Gini coefficient, is in any case compatible with negative growth effects of more inequality between lower income households and the rest of the population, especially since these tend to underinvest in education. The growth path that the Portuguese economy has been following does not seem to have led to enough wealth trickling down the distribution, with some agents persistently left behind in the growth process, and thus leading to high bottom end inequality. This in turn can hamper growth due to lack of funding of poorer individuals to invest in their skills and talents (Voitchovsky (2005). Social spending can thus have an important growth enhancing role if it is carefully targeted and designed. Understanding the design of social policies (duration of benefits, eligibility conditions, and so on) is hence of crucial importance to identify their corresponding distributive outcomes and the respective growth impact. Looking at the structure of social benefits, for instance unemployment benefits, family-related or active labour market policies, can also bring further insights. Focusing on what has happened to income inequality in Portugal at the bottom end of the income distribution and how it relates to the expansion of the welfare state and economic growth is thus a promising avenue for future research. Unfortunately, lack of data for a sufficiently long timespan did not allow us to pursue this line of research.

3. Conclusions

Portugal has registered high levels of inequality and a high concentration of income at the top of the distribution (Cingano (2014)). The concern about income distribution and social cohesion is increasing as this country has been hit by public finances sustainability problems with associated austerity measures that imply downsizing the respective welfare state, and thus threat to further increase inequality. Tackling inequality is crucial to make societies fairer and guarantee social cohesion but the behaviour of inequality can also be important to sustain long-term growth. The main aim of this paper was to link these different dimensions and examine whether the expansion of the Portuguese welfare state constituted an obstacle or an opportunity for its aggregate macroeconomic performance highlighting income inequality as the potential underlying mechanism that connects the two variables. For this purpose we estimated near-VAR models and applied an impulse-response analysis to investigate the dynamics among

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Furceri and Zdzienicka (2012) also find that this impact is more important in severe economic downturns and that the value of the multiplier for unemployment compensation can be as high as 2.1.
social spending, income inequality and output per capita over the period 1980-2013 for Portugal.

We found evidence that in Portugal an increase in social spending has been beneficial to aggregate macroeconomic performance since shocks to social expenditures exert a positive effect on output from the start, although they begin to lose strength shortly after. This result points to social spending as an expansionary fiscal policy instrument that can alleviate the downturn in output in the short-term. This positive relationship has been documented in other studies on the short-term effects of social spending on economic activity, in particular in Fureri and Zdzienicka (2012). An important implication of this result is that in periods of severe downturns as the one Portugal is experiencing the welfare state can play an important role in preventing a deeper recession. Nevertheless, the composition of social spending is also a relevant issue in terms of the quantitative importance of social spending multipliers, as Fureri and Zdzienicka (2012) and Afonso and Fureri (2010) show, and should be specifically addressed from the perspective of the Portuguese economy in future studies.

The long-term macroeconomic role of social spending, in particular its role as a driver of sustained economic growth, is less clear. First, the extent to which social policies succeed in reducing overall income inequality in Portugal seems limited with the results pointing to a volatile and ambiguous overall effect of an increase in social spending on the Gini coefficient, though negative in the first four years. This result is in line with Glatzer (2012) that highlights the fact that the Portuguese welfare state privileges pension spending and thus tends to replicate differences in earned income. However, a more detailed analysis of the characteristics of social policies, such as coverage, eligibility and duration of benefits, is necessary if we want to shed additional light on the distributional effects of such policies. Second, even if social spending brought about a more desirable distribution of income with regards to equity our results indicate that there would be a trade-off in terms of efficiency, interpreted as a decrease in output, since we obtained a positive response of output to an inequality shock. Based on this evidence, the mechanisms that seem to explain the relationship between inequality and growth in Portugal are those proposed by the earlier theories on the subject: inequality is good for growth since richer individuals have higher marginal propensities to save, thus leading to higher capital accumulation, and because it creates an incentive to belong to the wealthiest classes of society leading to higher working effort and entrepreneurial activity, both resulting in faster growth (Aghion et al. (1999); Barro (2000)). Maintaining a certain level of inequality seems thus to have been beneficial for economic growth in Portugal. But these results should be cautiously interpreted since the Gini coefficient controls for the overall distribution but does not permit to locate where changes in the distribution occur. The influence at the tails of the distribution could reflect imperfect credit markets theory effects (bottom end) or incentives from earlier models (top end) so we are not able to recognize if it is the average distribution or the tails that are driving the results. In particular, given the still low educational attainment levels of the Portuguese workforce we are not able to disentangle the role of social spending in reducing inequality in the low income groups relative to the rest of the population, which in turn can promote growth since people from disadvantage social backgrounds usually underinvest in their human capital, especially in education (Voitchovsky (2005); Cingano (2014)).

In summary, the results indicate that the ongoing austerity measures implemented in Portugal that are leading to important transformations in this country’s social protection system can

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7 In the extreme case when eligibility and benefit level depend on past contributions and are exclusively designed to maintain status and income, pensions would have no equalizing effect. The same applies to unemployment benefits.

8 This equity-efficiency trade-off calls also for further research on the mechanisms linking output growth to an increase in earnings inequality in the Portuguese economy, in particular the trade, skill-biased technical change and organizational change hypotheses that, according to Aghion et al. (1999), give rise to an increase in the wage premium across or within educational/skills groups.
negatively affect the pace of exit from the current recession, besides putting social cohesion at
stake in a country that has not succeed in significantly decreasing income inequality levels for
the past 30 years. This last result indicates that more important than the insufficient increase in
social benefits (in terms of preventing a rise in inequality) due to fiscal consolidation efforts is
the need to carefully target social support so that an effective and long-lasting reduction in
inequality can be achieved through welfare state effort. Regarding the concern about whether
the increase in inequality associated with the recent crisis might have an effect on economic
growth, past levels of income inequality seem to have been good for economic incentives and
thus should be considered as growth-enhancing but the magnitude of their impact is relatively
small. In any case this past equity-efficiency (more equality-less growth) trade-offs should not
be used as an argument for welfare state retrenchment as a policy to promote growth since if
inequality rises too much it can surpass the threshold in which the incentives become
disincentives and growth will eventually decline. If inequality reaches a much too high level it
can discourage higher working efforts by those at the bottom, impede human capital investment
by poor but talented individuals or lead to social instability, as predicted by many models.
Finally, from a policy perspective two recommendations are outlined. Special attention must be
given to the composition of social policies selecting areas of intervention that are growth
enhancing by contributing directly (for example, education expenditures - Baldacci et al.
(2004)) and indirectly (for example, reducing inequality at the bottom end of the distribution -
Cingano (2014)) to raise the still relatively low stock of human capital in Portugal. Additionally,
active labour market policies should also be reinforced in order to ensure that more
disadvantaged groups can benefit from an economic recovery (OECD (2014)).

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