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"Fiscal Adjustments and Income Inequality: A First Assessment"

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NIPE WP 19/ 2012

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Fiscal Adjustments and Income Inequality: A First Assessment

Luca Agnello[*] Ricardo M. Sousa[$]

[*] Banque de France, Service d'Etude des Politiques de Finances Publiques (FIPU), France; University of Palermo, Department of Economics, Business and Finance, Italy. Emails: luca.agnello@banque-france.fr, luca.agnello@economia.unipa.it

[$] London School of Economics, Financial Markets Group (FMG), United Kingdom; University of Minho, Economic Policies Research Unit (NIPE) and Department of Economics, Portugal. Emails: rjsousa@alumni.lse.ac.uk, rjsousa@eeg.uminho.pt.

ABSTRACT

Using a statistical approach to identify fiscal adjustments, we find that fiscal consolidation appears to shorten the income gap. Fiscal austerity plans that succeed in bringing public debt to a sustainable path seem to be more likely to reduce inequality. Expansionary fiscal adjustments are particularly important to promote changes in the income distribution.

Keywords: Inequality, fiscal consolidation, Kuznets curve, openness.
JEL classification: E25, H10, G18.

1. Introduction

The literature assessing the impact of fiscal consolidation is not consensual and has typically looked at the effects on the level or the growth rate of aggregate income. On the one hand, some authors emphasize the existence of the so called "expansionary fiscal contractions" (Feldstein, 1982; Giavazzi and Pagano, 1990; Alesina and Ardagna, 1998), whereby there the fiscal multiplier is negative. This body of work also shows that (i) spending cuts are less recessionary than tax increases when the deficit is reduced, and (ii) some fiscal adjustments based upon spending cuts are not associated with economic downturns (Cournede and Gonand, 2006; Guihard et al., 2007). On the other hand, the standard Keynesian model highlights the positive impact on output from fiscal spending rises or cuts in taxation (Blanchard, 2003; Romer and Romer, 2010).

A number of authors have also analyzed the impact of foreign direct investment (Choi, 2006) or globalization (Lee, 2010) on inequality, and the link between income inequality, household debt leverage and financial crises (Hubbard, 2010). Agnello and Sousa (2011) show that banking crises substantially raise income inequality, widening the income gap before the event emerges and sharply declining it afterwards.

Moreover, from an historical perspective, banking crises typically preceded or coincided with sovereign debt crises (Reinhart and Rogoff, 2011). However, no matter what the theoretical reason explaining such temporal sequence is, the need to restore fiscal sustainability afterwards forces governments to reduce their budget deficits via the implementation of fiscal consolidation programs. As a result, understanding the effects of fiscal consolidation on the distribution of income has gained a renewed interest.

From both a theoretical and an empirical perspective, such assessment crucially depends on the approach that is used to identify fiscal consolidation episodes. In this paper, we follow Alesina and Ardagna (2010) and rely on a standard statistical framework. Our results support an equalizing effect of the austerity measures and the neutrality of expansionary fiscal measures. We also find that fiscal consolidation seems to be more prone towards reducing inequality when it succeeds in achieving long-term public debt sustainability.

Finally, we show that there is evidence of a nonlinear relationship between inequality and growth (the so called "Kuznets" curve). In addition, a higher degree of openness seems to lead to a widening of the income gap.

2. The Statistical Approach

In this paper, we use a standard statistical approach based on the work of Alesina and Ardagna (2010). More specifically, we correct the primary surplus for year-to-year changes in the unemployment rate. Therefore, changes in fiscal variables should reflect policymakers' decisions to change tax rates and spending levels, once they are cyclically adjusted. A fiscal adjustment corresponds to a large improvement of the cyclically adjusted primary balance (CAPB), i.e. more than 1.5 per cent of GDP. A successful fiscal adjustment denotes a period where the cumulative reduction of the debt-to-GDP ratio three years after the beginning of a fiscal adjustment is greater than the value of 25th percentile of the empirical distribution of the change in the debt-to-GDP ratio across all episodes of fiscal adjustments. Finally, an expansionary fiscal adjustment occurs when the average GDP growth - in difference from the G7 average -, in the first period and in the two years after the episode is in the top 25 per cent of the empirical distribution of the same variable across all episodes of fiscal adjustments.

3. Econometric Framework

We consider the following system of two equations for a panel of N countries, indexed by i = 1, ..., N, that is:

$$\begin{bmatrix} y_{net,it} \\ y_{gross,it} \end{bmatrix} = \begin{bmatrix} X_{net,it} & 0 \\ 0 & X_{gross,it} \end{bmatrix} \begin{bmatrix} \beta_{net} \\ \beta_{gross} \end{bmatrix} + \begin{bmatrix} \alpha_{net,i} \\ \alpha_{gross,i} \end{bmatrix} + \begin{bmatrix} u_{net,it} \\ u_{gross,it} \end{bmatrix} \qquad (1)$$

where each equation has its own dependent variable (i.e., either the net income Gini inequality index, y_{net}, or the gross income Gini inequality index, y_{gross}) and a set of exogenous explanatory variables, X, which includes the log of per-capita GDP and its squared term and the trade openness. α_i and u_{it} denote, for each equation, the country-specific effects and the disturbance terms, respectively.

We also control for the potential redistributive effects of fiscal consolidation by, alternatively, including in the net income inequality equation three dummy variables labelled as D_{fa}, D_{sfa} and D_{efa}. The first one takes the value of one during years of fiscal adjustments and zero otherwise. The remaining two distinguish between 'successful' and 'expansionary' fiscal adjustments as defined in Section 2. Finally, model (1) is estimated

using a Seemingly-Unrelated-Regression (SUR) system under unbalanced panel data (BiØrn, 2004).

4. Data

We use annual data for 18 OECD countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, Portugal, Spain, Sweden, United Kingdom and United States) and the sample period is 1970-2010.

Gross and net income Gini inequality index data comes from the Standardized World Income Inequality Database (SWIID). Per capita GDP and degree of openness are taken from the World Development Indicators of the World Bank and the Penn World Table (PWT) Version 7.0, respectively.

Finally, consolidation episodes are identified using a statistical approach based on the work of Alesina and Ardagna (2010). In Figures 1, 2 and 3, we plot the net income Gini inequality index against fiscal adjustments, expansionary fiscal adjustments and successful fiscal adjustments, respectively.

[Figure 1]

[Figure 2]

[Figure 3]

5. Empirical Results

Table 1 summarizes the results. We show that, overall, fiscal adjustments reduce income inequality. The effects are statistically significant and reasonably large in magnitude. This is confirmed by the coefficient associated with fiscal adjustments in Column 1 (-0.01).

We also find that 'successful' fiscal adjustments tend to be strongly beneficial at achieving a more equal income distribution (as shown in Column 3). In fact, the net income Gini index falls in statistically significant manner by 0.05 when the fiscal consolidation succeeded in bringing public debt back to a lower level.

In addition, expansionary fiscal adjustments are more effective in shortening the income gap (Column 5). That is, consolidation measures that boost medium-term growth also seem to help reducing income inequality.

Our findings also corroborate the existence of an inverse U-shape curve between income inequality and per capita GDP – the so called the Kuznets relationship. This can be seen by the positive sign of the coefficient associated with per capita GDP and the negative sign of the coefficient linked to per capita GDP squared, and is in line with the work of Barro (2008).

Finally, a more unequal distribution of income can also be explained by an increase in the degree of openness of a country. Therefore, trade plays an important role in widening inequality.

[Table 1]

6. Conclusion

Using a statistical approach to identify fiscal consolidation programs, this paper suggests that fiscal adjustments are negatively linked with income inequality. In addition, the more successful the measure is towards achieving a sustainable path for the public debt, the more likely it is that the income gap will be shortened. Moreover, expansionary fiscal adjustments that have a positive impact on medium-term growth are also more prone to change the income distribution.

We also find evidence supporting the existence of the Kuznets curve and corroborating that trade widens the income gap. That is, while an increase in the degree of openness of a country contributes to prosperity, it also leads to more income disparity.

According to Devries et al. (2011), there are two potential drawbacks of the statistical approach. First, economic developments may be correlated with CAPB measurement errors. Second, if policymakers are committed to a sound fiscal stance but the economy is caught by a recession, fiscal consolidation will be associated with unfavorable economic outcomes. Similarly, if governments postpone the path for deficit-reduction until the economic recovery takes place, the fiscal measures will be linked with positive economic outcomes. In order to tackle these issues, one could look at the trade-off between income inequality and fiscal consolidation through the lenses of a narrative approach. We leave this piece of research for the future.

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List of Tables

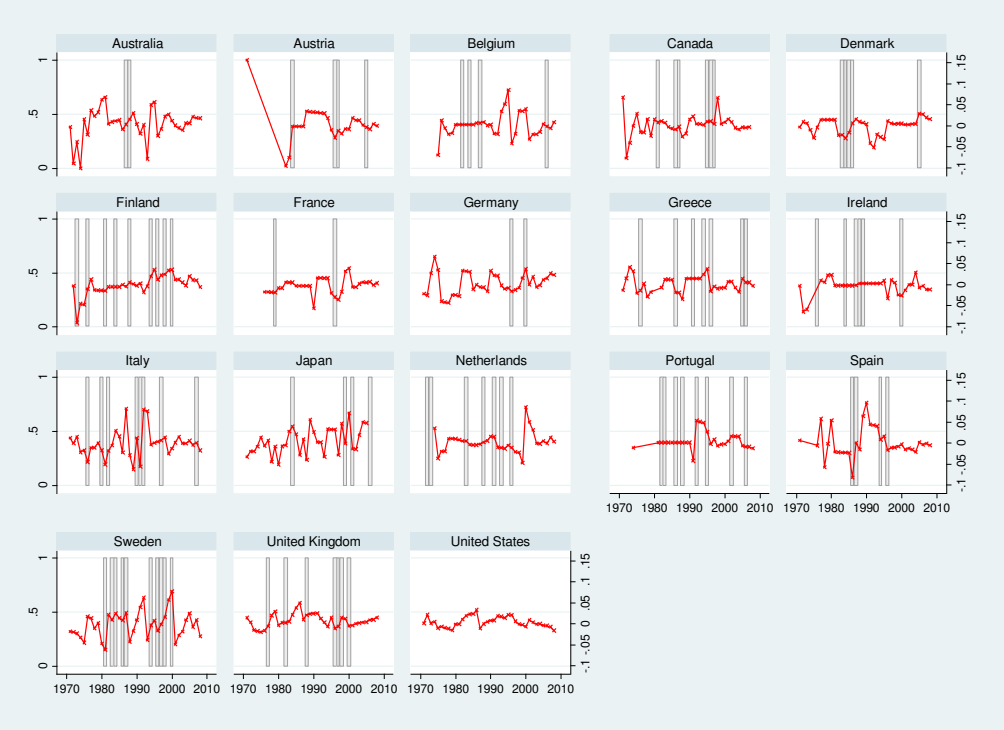
Table 1 - Results from a statistical identification approach.

Explanatory variable	Dependent variable: Gini index (SWIID)					
	(1)	(2)	(3)	(4)	(5)	(6)
	Net	Gross	Net	Gross	Net	Gross
log (per capita GDP)	0.119***	0.172***	0.123***	0.176***	0.118***	0.170***
	[0.013]	[0.014]	[0.013]	[0.014]	[0.013]	[0.014]
log (per capita GDP) squared	-0.005***	-0.006***	-0.006***	-0.006***	-0.005***	-0.006***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Fiscal adjustments (D_{fa})	-0.011**					
	[0.004]					
Successful fiscal adjustments (D_{sfa})			-0.050***			
			[0.010]			
Expansionary fiscal adjustments (D_{efa})					-0.016**	
					[0.008]	
Openness	0.040***	0.024**	0.041***	0.026***	0.040***	0.025***
	[0.009]	[0.010]	[0.009]	[0.010]	[0.009]	[0.010]
Observations	626	626	626	626	626	626
Number of countries	18	18	18	18	18	18

Note: Dependent variables are Gini coefficients. Coefficients are estimated by seemingly-unrelated regression technique in a panel framework (BiØrn, 2004). Standard errors of coefficients are in square brackets.

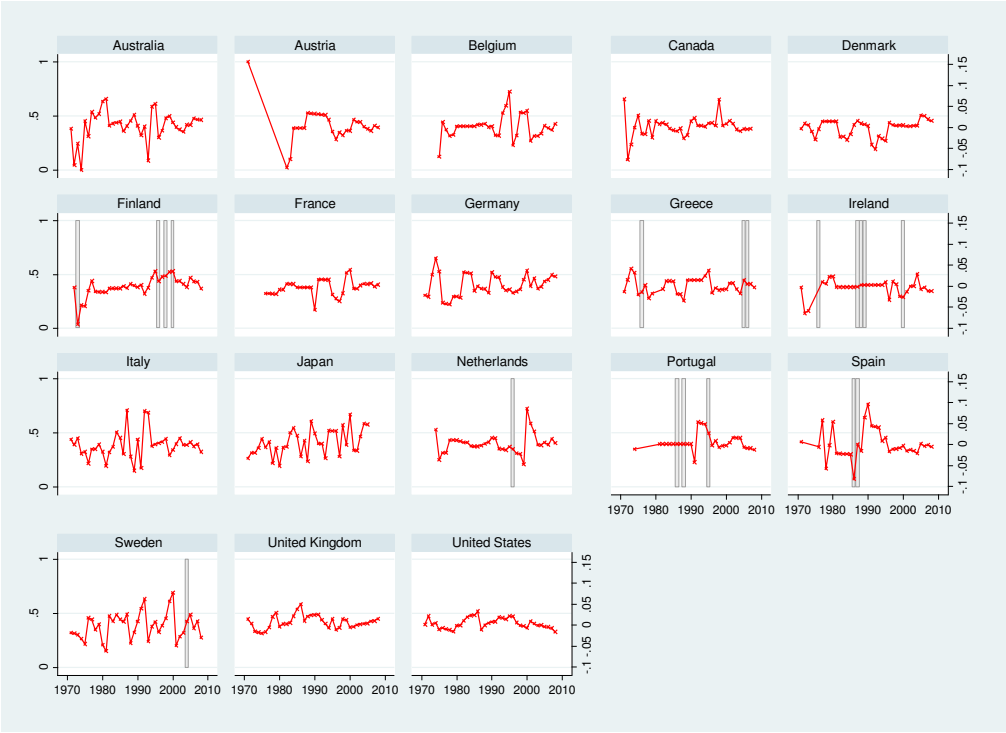
List of Figures

Figure 1. Fiscal adjustments and net income inequality.



Note: The red line denotes the annual change in the net income Gini Index (on the right axis), while the shaded regions correspond to the fiscal adjustment episodes (on the left axis).

Figure 2. Expansionary fiscal adjustments and net income inequality.



Note: The red line denotes the annual change in the net income Gini Index (on the right axis), while the shaded regions correspond to the expansionary fiscal adjustment episodes (on the left axis).

Figure 3. Successful fiscal adjustments and net income inequality.

Note: The red line denotes the annual change in the net income Gini Index (on the right axis), while the shaded regions correspond to the successful fiscal adjustment episodes (on the left axis).

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