



PROPERTY TAX AND FISCAL DISCIPLINE IN OECD
COUNTRIES

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Abstract

This paper investigates the effects of property taxation on fiscal discipline for a sample of OECD countries over the period 1973-2011. We find that aggregate property taxation in total tax revenues is not statistically correlated with the primary surplus-to-GDP ratio. In contrast, a greater reliance on property taxes pertaining to sub-national governments contributes to fiscal discipline, suggesting that fiscal decentralization should favor responsive tax base instruments.

JEL Codes: H62, H71, H77, E62

Keywords: Property tax, Tax decentralization, Sub-national governments, Fiscal imbalance

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1 Introduction

Large and increasing public debts in industrialized economies are urging policy makers and economists to identify the most efficient tax instruments that governments can use to consolidate their fiscal position. In this perspective, the adoption of a property tax, especially on land and other immovable property, is a widely debated issue (OECD, 2012; Norregaard, 2013).

Despite the attention paid by the literature to vices and virtues of property taxes for different macroeconomic outcomes, the impact of the use of property taxation on overall fiscal balance is still an relatively unexplored.¹ This paper fills this gap and investigates the effect of property taxes on national fiscal discipline in a sample of 22 OECD countries over the period 1973-2011.

The correlation between property tax and fiscal discipline is not clear-cut. A shift from income to property taxes can exert both beneficial and detrimental effects on the fiscal balance by improving or worsening a country's economic performance and tax revenue collection (the "general efficiency effect") and by disciplining local politicians and voters (the "local incentive effect").

First, on the beneficial side, by burdening accumulated wealth, property taxes have less distortionary effects on the allocation of resources than income and consumption taxes (Norregaard, 2013). Second, property taxes are a more stable and predictable source of revenues than other forms of taxation as their tax base is mostly immovable and the legally defined value of properties is less volatile than income and consumption tax bases (Lutz *et al.*, 2011).² Third, property taxes may discipline non-benevolent politicians, making them more accountable and responsible (Brennan and Buchanan, 1980). As the property tax base is responsive to the quality and amount of local public goods and to fiscal burden, revenue-maximizing politicians may have incentives to deliver services at a lower cost (Glaeser, 1996). In addition, the high degree of salience of property taxes makes the taxpayer's vote more sensitive to changes in the property tax rates (Cabral and Hoxby, 2012).

On the other hand, an increase in property taxation might worsen a country's fiscal balance. First, levies on property can discourage individuals from wealth accumulation, reducing the propensity to save and invest (Kopczuk and Slemrod, 2001). Second, non-recurrent taxes on property transfers can reduce the number of market transactions and increase market price volatility. Third, the salience of property taxes raises the incentive to tax avoidance and evasion (Kopczuk, 2010). Finally, accurate assessment of property tax bases is problematic and costly, making the legal value of properties divergent from market prices.

Against this backdrop, we test whether the degree of reliance on property taxes is significantly correlated with the ratio of general government primary balance over GDP and whether

¹A related literature has looked at the effect of property tax on wealth accumulation (Holtz-Eakin and Marples, 2001), tax avoidance (Kopczuk and Slemrod, 2001), local public goods supply (Fiva and Ronning, 2008), local government size (Liberati and Sacchi, 2013) and economic growth (Acosta-Ormaechea and Yoo, 2012; Ojede and Yamarik, 2012).

²Further, to the extent that tax evaders invest the proceeds of their evasion in land, real estates and other immovable properties, property taxation allows tax authorities to retrieve resources which might otherwise elude them.

the possible beneficial impact of the property taxation is linked to the “general efficiency effect” and/or to the “local incentive effect”. Thus, we first consider the effect of the share of aggregate property taxes to total tax revenues on primary balance. Then we focus on the amount of property taxes raised at the local government level as a share of local tax revenues. As property taxes in advanced economies are predominantly assigned to a lower government level³ (Norregaard, 2013), we control for tax decentralization which, according to traditional and public choice theories of fiscal federalism, can have either “laxness” or “discipline” effects on public deficits. Taking into account the heterogeneous effects of different local taxes, we also contribute to the literature on fiscal decentralization and fiscal balances (Neyapti, 2010; Baskaran, 2012).

We find that while the share of aggregate property taxes to total tax revenues shows no significant correlation with the primary balance-to-GDP ratio, the use of property taxes at a sub-national level contributes to straighten fiscal discipline beyond the positive impact of tax decentralization, consistent with the “local incentive effect” of property taxation.

2 Property taxation in OECD countries

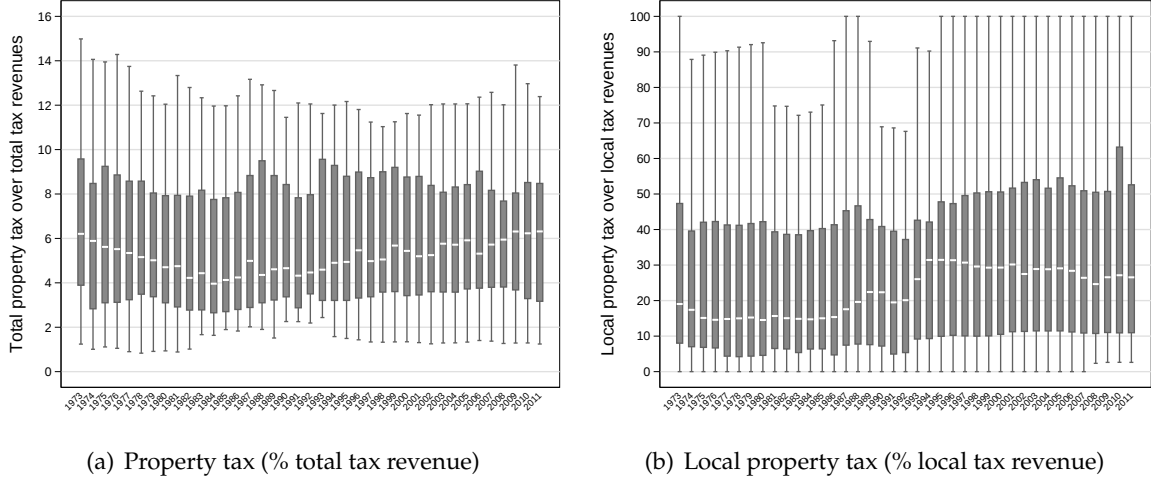
In this paper we consider the total property taxes as computed by the OECD Revenue Statistics. They are the sum of recurrent taxes on immovable property, recurrent taxes on net wealth, taxes on inheritances and gifts, financial and capital transaction taxes, and other recurrent or non-recurrent taxes on property. The countries included in the empirical analysis are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. In these countries, the distribution of the share of total property taxes over total tax revenues shows a significant degree of variability across countries and over time (see the box plot reported in Figure 1, panel a). On average, property taxes represent 5.9% of general government revenues during the period 1973-2011. Countries with higher shares are the federal ones (the United States 11.7%, Canada 10%, and Australia 8.8%), the United Kingdom (11%) and Japan (9.9%). The incidence of property taxation on total revenue is quite stable over our time span, even if in recent years it has gradually declined.

Even though property taxation may not occupy a central position in the overall revenue systems of most countries, it frequently contributes significantly to the financing of sub-national governments. Property taxes are assigned to sub-national governments with more autonomy than other taxes and are usually associated with tax separation schemes.⁴ In our sample, the average share of local property taxes is one third of aggregate sub-national tax revenues, with quite a large variability between countries. In some countries property taxes cover the whole sub-national revenue system (the United Kingdom 92.6% and New Zealand 90.1%). In contrast, local property taxes are almost absent in Finland and Sweden where the predominant

³All countries in our sample have at least two levels of independent political institutions. Hereafter, ‘local’ refer to all ‘sub-national’ government levels.

⁴This is especially true for the immovable tax component that accrues solely to local governments in the large majority of both high-income and middle-income countries (Norregaard, 2013).

Figure 1: Property taxation across OECD countries: 1973-2011



Notes: our calculations from OECD Revenue Statistics.

sub-national tax revenue is income tax. The variability over time of property taxes accruing to sub-national governments is shown in Figure 1 (panel b). This ratio records values lower than 30% during the 1970s and the 1980s, while it starts to increase at the beginning of the 1990s (from 32.7% in 1993 up to 36.4% in 1995). The ratio stabilizes around 35% in the following years with a peak of 38.6% in 2010.

3 The empirical strategy

To test whether the use of property taxation affects fiscal discipline, we regress the government primary balance-to-GDP ratio (*PRIMARY BALANCE*) on two alternative definitions of property taxes and a set of control variables on an unbalanced panel of annual data for 22 OECD countries over 1973-2011:

$$\begin{aligned}
 PRIMARY\ BALANCE_{it} = & \alpha + \beta \cdot PROPERTY\ TAX_{it-1} + \gamma \cdot TAX\ DECENTRALIZATION_{it-1} \\
 & + \sum_{j=1}^N \delta_j \cdot CONTROL_{jit-1} + \lambda_i + \tau_t + \epsilon_{it}
 \end{aligned} \tag{1}$$

where i denotes the country, t the year, and j the control variables. We measure the degree of fiscal discipline by primary rather than overall balance – the former excluding interest payments on public debt – because primary expenditures are more easily under the control of governments and they are therefore more representative of the country’s fiscal discipline (Baskaran, 2012).⁵ We start by testing the “general efficiency effect” measuring *PROPERTY TAX* with the share of total property taxes to general government revenues (*PROP-*

⁵Information on primary balance is drawn from the IMF Historical Public Finance Dataset (Mauro *et al.*, 2013), which ensures a longer and more complete time series for each country in our sample than the OECD National Accounts database. The IMF data on primary balance are reported at the general government level; some switches from central to general government occur in the 1970s and they are recorded by a dummy variable.

ERTY/TOTAL), and we then consider the local component of property taxes as a share of sub-national tax revenues (*LOCAL PROPERTY/LOCAL*) to capture the “local incentive effect” of property taxation. *TAX DECENTRALIZATION* is given by the share of sub-national tax revenues on general government tax revenues. The right-hand-side variables are expressed at period $t - 1$ as the primary balance in year t is likely to be dependent on the previous year’s socio-economic factors. In addition, using lagged values of explanatory variables mitigates possible reverse causality issues.⁶

The error term consists of a country-specific time-invariant effects (λ_i), a time-fixed effects (τ_t) and the idiosyncratic component (ϵ_{it}). In this way we implicitly take into account important determinants of a country’s fiscal stance that are time-invariant, like constitutional and institutional features and the effect of common shocks (e.g. global crisis on fiscal policy).

As the error term is likely to be serially correlated and the Pesaran (2004) CD test indicates that residuals are cross-sectionally correlated, we estimate equation (1) using the fixed-effects estimator with the Driscoll and Kraay (DK) corrected standard errors, which are robust to heteroschedasticity, cross-sectional dependence and autocorrelation (Driscoll and Kraay, 1998).⁷

4 Results

The results of the estimation of equation (1) are reported in Table 2. The coefficient on *PROPERTY/TOTAL* is not statistically significant, even not controlling for the degree of tax decentralization (columns 1 and 2). This suggests that contrasting forces may be at work when considering aggregate measures of property tax revenues with reference to the consolidated government sector. Put differently, there is no evidence of a “general efficiency effect” of property taxes on the fiscal balance. However, the positive effect of property taxation is likely to emerge locally where the property tax can effectively work as a visible and accountable device, stimulating voters to be aware of the costs of local public programs (Glaeser, 1996; Borge and Rattso, 2008; Fiva and Ronning, 2008).

Indeed, the coefficient on *LOCAL PROPERTY/LOCAL* shows a positive and statistically significant correlation between the local component of property taxes as a share of sub-national tax revenues and primary balance (columns 3 and 4), irrespective of the inclusion or not of the tax decentralization variable.⁸ The elasticity of the primary balance-to-GDP ratio with respect to *LOCAL PROPERTY/LOCAL* ranges from 0.9 in the baseline model (column 3) to 0.6 in the augmented specification of column 4. On the ground of the latter estimates, an increase in the share of property taxes in local tax revenues from 11.5% (the average for Italy over the sample period) to 32.7% (the average for the US) is associated with a positive change in the primary balance-to-GDP ratio of 0.5%.

⁶Detailed information on definitions and sources of all the variables used in the analysis are reported in Table 1, together with summary statistics.

⁷As benchmark, we use a three-lag correction for auto-correlated errors after observing the residual correlation over time. However, results are robust to increasing the lag-structure up to four and six lags, when the correlation starts to become weak.

⁸Results are not affected by multicollinearity between our main explanatory variables: the correlation between *TAX DECENTRALIZATION* and *LOCAL PROPERTY/LOCAL* (*PROPERTY/TOTAL*) is -0.48 (0.30).

The coefficients on the control variables generally have the expected signs and they are often statistically significant and stable across model specifications. We find a positive correlation between the degree of tax decentralization and the the ratio of primary balance over GDP. This result lends support to the hypothesis that tax decentralization contributes to promote fiscal discipline in OECD countries (Neyapti, 2010).⁹

We observe that the size of the public sector is a source of inefficiency (Neyapti, 2010) and that in larger countries increasing needs and heterogeneous preferences, hindering the exploitation of scale economies in the provision of public goods, lead to a worse fiscal stance. In addition, a higher dependency ratio is positively (even if not always significantly) associated with the primary balance, suggesting that pensioners and retirees tend to be net contributors to the fiscal system.

The coefficients on the unemployment rate and GDP growth indicate that fiscal policy is counter-cyclical (Baskaran, 2012). By contrast, our results do not show any significant correlation between inflation and the fiscal balance.

Moving to fiscal variables, we find that higher interest payments are associated with subsequent stronger fiscal surpluses, suggesting that governments try to offset the increase in the debt burden through fiscal adjustment. The coefficient on the public debt-to-GDP ratio is negative and statistically significant, pointing to a positive association between high debts and fiscal profligacy.

The baseline specification is augmented with additional control variables capturing other political, institutional and economic factors that may be correlated with the primary balance (column 4). We find that the political orientation of national governments is not statistically associated with the primary balance. The counter-cyclical pattern of fiscal policy is reinforced by the fact that the fiscal balance deteriorates during banking crises. Finally, a higher trade openness is statistically associated with a better primary balance-to-GDP ratio, possibly because of the effect of foreign direct investment on government revenue (Swank, 1998).

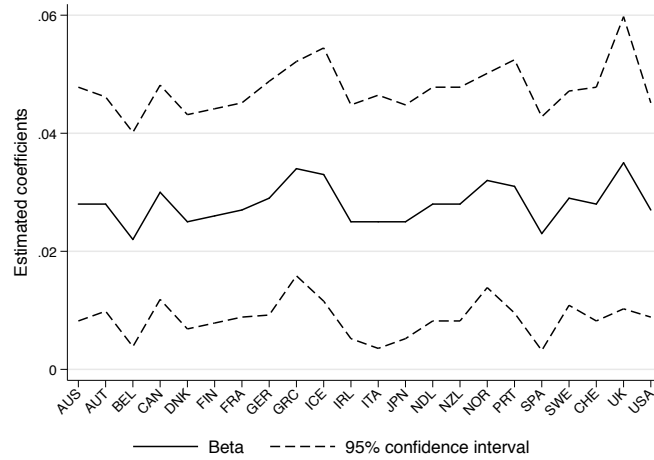
4.1 Robustness exercises

We test the robustness of our results estimating equation 1 by Feasible Generalized Least Squares (column 6) and using the fiscal variables according to the OECD database, in order to have the same source used for our measures of property taxes and tax decentralization (column 7). Although harmonization of sources comes at the cost of a smaller sample, we confirm the positive correlation between the incidence of local property taxation on sub-national tax revenue and the primary balance-to-GDP ratio.

Our measure of property taxes includes recurrent taxes on immovable property, taxes on net wealth, taxes on inheritances and gifts, financial and capital transactions, and other prop-

⁹Standard measures of tax decentralization can overestimate the degree of decentralization, as they do not adequately capture the extent of autonomy of sub-national governments over the allocation of their revenue (Stegarescu, 2005). Hence, we have checked the robustness of our results using the alternative measure of tax decentralization proposed by Stegarescu (2005). Data availability restricts the sample up to 2001, but the coefficient on *LOCAL PROPERTY/LOCAL* remains positive and significant. In addition, in our sample the correlation between our *TAX DECENTRALIZATION* variable and the narrowest index built by Stegarescu (2005) is 0.87.

Figure 2: The coefficient on *LOCAL PROPERTY/LOCAL*, jackknife samples



Notes: the diagram shows the estimated coefficients on *LOCAL PROPERTY/LOCAL*, and the 95% confidence intervals, for 22 different samples, each excluding one country, reported on the x-axis. Estimates refer to model 1, as reported in Table 2, column 4.

erty taxes. However, only recurrent taxes on immovable property are usually administered and collected by local governments. Thus, the results may potentially be related to the property tax instrument, and not the level of government responsible for collection. To get rid of this source of bias, we consider exclusively taxes on immovable property for both levels of government. Our results hold and confirm the “local incentive effect” of property taxation.

Finally, our results are robust to the presence of outliers. Figure 2 shows that the coefficient on *LOCAL PROPERTY/LOCAL* is quite stable and statistically significant across different samples obtained when dropping one country at a time.

5 Summary and policy implications

As recently put by [The Economist \(2013\)](#), “ask an economist about which are the most efficient kinds of taxes, and property taxes will be high up on the list”. In this paper, we focused on vices and virtues of property taxation for improving a country’s fiscal balance by empirically assessing whether a larger reliance on property taxes is associated with a sounder fiscal position.

Our results, based on a sample of 22 advanced economies over the period 1973-2011, show that, while the share of total property taxes in total government revenue does not affect the fiscal stance, a higher recourse to property taxation at the sub-national level is statistically associated with a larger primary balance-to-GDP ratio. While the interpretation of these results should keep in mind potential endogeneity concerns, our findings would suggest that the positive effects of property taxes are likely to be due to their efficiency and incentive virtues occurring at the local level, and to the relative advantage of this form of taxation in promoting the accountability, responsibility and discipline of sub-national authorities with respect to

other forms of local revenues (e.g., income taxes or sales taxes).

Recent institutional reforms have aimed to strengthen fiscal governance and rules in several advanced economies. These rules have been designed to promote nationwide fiscal sustainability and have important consequences for managing public finances in decentralized countries as well ([Spilimbergo *et al.*, 2009](#)). The conventional wisdom suggests that fiscal autonomy be conferred to achieve the goal of fiscal responsibility. Our results support this view, but they also suggest that a major ingredient to ensure nationwide fiscal discipline is to rely at the sub-national level on responsive tax base instruments with an intrinsic degree of autonomy – such as the property tax –, which can effectively discipline local politicians and bureaucrats.

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Table 1: Variables' definitions, sources and summary statistics

Variables	Definition	Source	Mean	Std. Dev.	Min	Max
PRIMARY BALANCE PROPERTY/TOTAL	Government primary balance, percent of GDP (*) Aggregate property tax on general government tax revenues, percent	Mauro et al. (2013) Elaborations on OECD Revenue Statistics	0.858 5.928	4.010 3.265	-28.175 0.833	20.570 21.417
LOCAL PROPERTY/LOCAL	Local property taxes on local tax revenues, percent (**)	Elaborations on OECD Revenue Statistics	32.671	31.155	0.000	100.000
TAX DECENTRALIZATION	Local tax revenues on general government tax revenues, percent (**)	Elaborations on OECD Revenue Statistics	18.168	13.468	0.036	49.395
GOVERNMENT SIZE	Government consumption at current PPPs, percent of GDP	PWT 8.0	16.991	4.060	6.288	29.016
POPULATION	Population, ('000)	OECD (Annual Labour Force Statistics)	36.504	57.487	0.212	311.588
DEPENDENCY RATIO	Sum of population under 15 and population over 64 on total population, percent	Elaborations on OECD (Annual Labour Force Statistics)	34.022	2.095	29.843	42.076
GDP GROWTH	Gross domestic product, volume, growth, annualised rate	OECD (Economic Outlook 93)	2.499	2.525	-8.539	11.633
UNEMPLOYMENT	Rate of unemployment, percent of Civilian Labour Force	OECD (Annual Labour Force Statistics)	6.609	3.927	0.002	24.171
INFLATION	Consumer Price Index (all items), Growth on the same period of the previous year	OECD (Key Economic Indicators)	5.983	7.090	-4.500	84.000
INTEREST PAYMENTS	Interest paid on public debt, percent of GDP	Mauro et al. (2013)	3.629	2.358	-2.130	12.659
PUBLIC DEBT	Gross public debt, percent of GDP	Mauro et al. (2013)	55.614	31.123	2.974	229.610
POLITICAL PARTY	Dummy equal to 1 for left-oriented government party	Elaborations on Teorell et al. (2013)	0.410	0.492	0	1
BANKING CRISIS	Dummy equal to 1 for year of banking crisis	Laeven and Valencia (2013)	0.089	0.284	0	1
OPENNESS	Trade openness of the economy at current PPPs (sum of merchandise imports and exports), percent of GDP	PWT 8.0	70.406	42.287	12.070	276.537

Notes: PWT: Penn World Tables. (*) Data from the IMF public finance dataset are referred to the most comprehensive sector of government for which they were available. Accordingly, primary balance series are reported at the general government level where these are available. (**) Local tax revenues are at all sub-national government levels (state, regional, provincial, and local) where local non-tax revenues and capital revenues are excluded.

Table 2: Equation 1: Property taxes and the primary balance

Dep. Var.:	Fixed-effects with DK standard errors				FGLS	OECD	
PRIMARY BALANCE	(1)	(2)	(3)	(4)	(5)	(6)	(7)
PROPERTY / TOTAL	0.042 [0.093]	-0.026 [0.078]					
LOCAL PROPERTY / LOCAL			0.031** [0.012]	0.028** [0.011]	0.022*** [0.007]	0.024*** [0.008]	0.025** [0.010]
TAX DECENTRALIZATION		0.082*** [0.020]		0.069*** [0.022]	0.059** [0.022]	0.065*** [0.021]	0.085** [0.035]
GOVERNMENT SIZE	-0.460*** [0.066]	-0.511*** [0.064]	-0.461*** [0.066]	-0.507*** [0.065]	-0.558*** [0.059]	-0.528*** [0.047]	-0.635*** [0.056]
POPULATION	-0.073*** [0.011]	-0.079*** [0.011]	-0.070*** [0.011]	-0.074*** [0.011]	-0.054*** [0.010]	-0.047*** [0.009]	-0.048*** [0.013]
DEPENDENCY RATIO	0.297 [0.196]	0.310 [0.195]	0.326* [0.188]	0.333* [0.191]	0.404** [0.179]	0.368*** [0.076]	0.065 [0.178]
GDP GROWTH	0.316*** [0.073]	0.315*** [0.072]	0.313*** [0.073]	0.315*** [0.072]	0.221*** [0.070]	0.194*** [0.041]	0.242** [0.089]
UNEMPLOYMENT	-0.215*** [0.035]	-0.199*** [0.031]	-0.232*** [0.036]	-0.211*** [0.034]	-0.251*** [0.038]	-0.264*** [0.036]	-0.444*** [0.050]
INFLATION	0.011 [0.022]	0.022 [0.021]	0.017 [0.022]	0.027 [0.021]	0.007 [0.022]	0.001 [0.019]	-0.014 [0.053]
INTEREST PAYMENTS	1.026*** [0.072]	1.048*** [0.069]	1.034*** [0.079]	1.055*** [0.076]	0.971*** [0.073]	0.971*** [0.078]	1.010*** [0.116]
PUBLIC DEBT	-0.018*** [0.006]	-0.020*** [0.005]	-0.021*** [0.006]	-0.022*** [0.006]	-0.019*** [0.005]	-0.025*** [0.006]	-0.001 [0.006]
POLITICAL PARTY							
BANKING CRISIS							
OPENNESS							
					-0.233 [0.256]	-0.239* [0.142]	-0.373 [0.256]
					-3.014*** [0.564]	-2.138*** [0.345]	-3.808*** [0.839]
					0.022** [0.010]	0.021*** [0.006]	0.037*** [0.009]
Observations	802	802	802	802	767	767	618
Number of groups	22	22	22	22	22	22	22
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F test	0.000	0.000	0.000	0.000	0.000		0.001
Wald test						1880.5	

Notes: The table reports regression coefficients and (in brackets) the associated [Driscoll and Kraay \(1998\)](#) robust standard errors, assuming a 3-lag autocorrelation structure of the error term (columns 1-5). Estimates of column (6) are obtained with the Feasible Generalized Least Squares. In column (7) the ratios of primary balance, interest payments and public debt over GDP are drawn from the National Accounts collection of the OECD, rather than from the IMF Historical Public Finance Dataset. * significant at 10%; ** significant at 5%; *** significant at 1%. The dependent variable is the value of the government primary balance in percent of GDP of country j in year t (*PRIMARY BALANCE*). A set of time dummies and dummies capturing switches in the government sector coverage (from central to general government) for the dependent variable (as reported in the IMF Historical Public Finance Dataset) are included.