

**FISCAL DECENTRALIZATION AND  
ECONOMIC GROWTH IN OECD  
COUNTRIES: MATCHING SPENDING  
WITH REVENUE DECENTRALIZATION**

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P. T. N.º 6/09

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Edita: Instituto de Estudios Fiscales

N.I.P.O.: 602-09-006-9

I.S.S.N.: 1578-0252

Depósito Legal: M-23772-2001

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## ABSTRACT

This paper examines whether the efficiency gains that allegedly accompany fiscal decentralization (FD) generate higher growth in more decentralised economies. Previous research on this relationship has failed to generate a consensus. We examine a sample of 23 OECD countries over 1972-2005, applying pooled mean group and instrumental variable techniques to a dynamic panel dataset. We find that *spending* decentralization decreases, while *revenue* decentralization increases, economic growth. Since OECD countries are substantially more spending than revenue decentralized, this evidence provides strong support for Oates (1972) hypothesis that maximum FD efficiency gains require a close match between spending and revenue decentralization. Some recent studies have concluded that increasing subnational autonomous revenue increases growth. Our conclusion is rather that *convergence* between spending and revenue decentralization is growth-enhancing. Our results are robust to various FD definitions and demonstrate the importance of testing *simultaneously* for these two FD-growth effects.

**Keywords:** fiscal decentralization, economic growth, pooled mean group, government accountability.

**JEL Codes:** E62, H71, H72.



## I. INTRODUCTION

Fiscal decentralization (hereafter: FD) is a political economy trend in both developing and developed countries. According to World Bank (1999), some 95 percent of democracies now have elected subnational governments, and countries everywhere are devolving political, fiscal, and administrative powers to subnational tiers of government below the national level. Dillinger (1994) reported that of the 75 developing countries with populations greater than 5 million, all but 12 claim to have initiated measures to transfer some power to local government units. In developed countries the United States, the United Kingdom, and Canada have revived debates on fiscal decentralization or devolution (Xie *et al.*, 1999). In recent years, the U.S. Congress has been contemplating how to devolve more expenditure responsibility to State and local governments. FD has also become a key issue in Japan since the law for the promotion of fiscal decentralization was enacted in 1995. These efforts at devolution in a number of OECD countries are accompanied by the emergence of a new top layer of government in the European Union.

The movement towards FD is often justified by the widespread belief that it is an effective tool for increasing the efficiency of public expenditures and competition among subnational governments in delivering public services (Bird and Wallich, 1993). This may also be a reaction to the failure of large centralized bureaucracies in developing and transitional countries (Martínez-Vázquez and McNab, 2003). World Bank (1999), for example, has argued that alongside globalization, localization –the increasing demand for local autonomy– is the main force shaping the world in the first decade of the 21st century.

In this paper, we focus on a specific debate in the literature on FD – namely that it improves economic growth performance. We summarise a number of the relevant arguments in section 2, and then review the existing empirical evidence on the FD-growth relationship in section 3. We argue that the existing literature is deficient in a number of respects; for example by rarely testing simultaneously for revenue and expenditure decentralization. Section 4 presents our data and empirical methodology, and section 5 tests for an effect of FD on economic growth rates in OECD countries over the period 1972-2005. Section 6 checks the robustness of our findings to alternative econometric techniques to deal with endogeneity, and alternative measures of fiscal decentralization. Section 7 summarises the main conclusions.



## 2. ARGUMENTS IN FAVOUR AND AGAINST FISCAL DECENTRALIZATION

The basic argument in favour of fiscal decentralization is that it improves the efficiency of the public sector and promotes long-term economic development (Oates, 1972). Decentralization enhances economic efficiency because local governments have better knowledge of local conditions and preferences in the provision of public goods than national governments due to their physical and institutional proximity. These informational advantages allow local governments to deliver public goods and services that better match local preferences and/or deliver the same public goods and services at lower cost<sup>1</sup>.

In addition, sub-national governments may be subject to closer scrutiny by their constituencies. This greater accountability may also lead to greater producer efficiency by providing incentives to local governments to innovate in the production and supply of public goods and services (Martínez-Vázquez and McNab, 2003). Over 30 years ago Oates (1972) argued that this allocative efficiency benefit becomes greater when there is a close match between revenue discretion and spending assignments at sub-national levels. And such matching, it is argued, gives local government a stronger fiscal incentive to support local market development (Jin *et al.*, 2005), improves accountability of sub-national governments and reduces the distorting effects of intergovernmental transfers (Shah, 1994).

Secondly, Oates (1999) argues that by diversifying government output according to local preferences, decentralization may attain higher levels of social welfare. If preferences for public goods differ across regions, uniform levels of public goods and services across jurisdictions will generally be inefficient. The larger the variance in regional demands for public goods, the larger the benefits of FD. This diversification also allows residents to move to the community that best matches their demand for public goods and services, and local tax rate. Thus, a 'Tiebout sorting' of individuals into demand-homogeneous jurisdictions further increases efficiency in resource allocation.

Building on this Tiebout (1956) mechanism, Brueckner (2006) proposes a model in which fiscal decentralization leads young and old consumers to live in separate jurisdictions according to their different demands for public services: low and high. This sorting increases after-tax income when young while reducing it when old, increasing the incentive to save. This stronger incentive in turn leads to an increase in investment in human capital and long-term economic growth. However, it is not necessary for individuals to have different

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<sup>1</sup> These arguments are reinforced where public good characteristics are local in nature (e.g. sharing economies or non-excludability aspects are geographically restricted).



preferences for local public goods or be relatively mobile to obtain efficiency gains from FD. Thiessen (2003) argues that as long as subnational governments better reflect the priorities of taxpayers, this is sufficient for fiscal decentralization to offer efficiency advantages<sup>2</sup>.

The theoretical effects of FD on economic growth are not unambiguously positive however. Firstly, FD may impact negatively on the distribution of public resources across jurisdictions, since mobility of households and businesses can seriously constrain attempts to redistribute income. Redistributive policies are likely to induce poor individuals to move into the jurisdiction while higher income individuals (who bear a greater tax burden) move out. To the extent that income inequality retards economic growth (Persson and Tabellini, 1994), FD might negatively affect growth by making redistribution more difficult. Furthermore, concentration of public goods, with supra-local spillovers, in a few geographical locations can also inhibit per capita growth because regional inequalities in infrastructure, education, healthcare and other public services may prevent full use of factors of production (Thiessen, 2003). In this case, more centralized public sectors might redistribute resources across jurisdictions leading to a more efficient distribution.

Other economic arguments against FD include possible damage to macroeconomic stability via fiscal policy coordination problems (Tanzi, 1996); inter-jurisdictional 'leakages' associated with local expenditures (Oates, 1972)<sup>3</sup>; and failure to exploit economies of scale and scope (Prud'homme, 1995). In addition FD may lead local governments to engage in a 'race to the bottom' on the taxation of mobile factors, hence under-providing productive public expenditure (Brueckner, 2004), or increase corruption because officials at the local level are closer to people and more susceptible to the demands of local interest groups (Prud'homme, 1995; Tanzi, 1996)<sup>4</sup>. Finally, Tanzi (1996)

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<sup>2</sup> A further argument in favour of FD is that it promotes competition among different levels of government resulting in a more efficient production of public goods under revenue constraints. Such competition may prevent revenue maximisation by 'monopoly' governments and the oversupply of public goods. (Brennan and Buchanan, 1980).

<sup>3</sup> On the other hand, Gramlich (1993) claims that if economic shocks are asymmetric, then decentralised systems make it easier to achieve macroeconomic stability. Shah (2006) also suggests that central bank independence is more likely attained under decentralized systems, because the pressure of a unique central government diminishes, leading to the presence of multiple governments with diverse and conflicting interests. Finally, Martínez-Vázquez and McNab (2003) maintain that a well designed fiscal decentralization system (preventing local governments to borrow without controls) avoids fiscal systems damaging macroeconomic stability.

<sup>4</sup> Martínez-Vázquez and McNab (2003) dispute this argument claiming that local officials are more visible to their constituents and thus corrupt behaviour is more visible than at the central level of government.



suggests that the assumption that individuals freely move between municipalities may be unrealistic at least in the short term, allowing local governments to be relatively unresponsive to local citizens' preferences.

In summary, there are clearly argument for both positive and negative effects of fiscal decentralization on fiscal efficiency and economic growth rates. It is perhaps not surprising then that the empirical literature discussed below has tended to find a variety of effects in different contexts.

### **3. EMPIRICAL EVIDENCE ON FD AND ECONOMIC GROWTH**

As a number of authors have noted, there is surprisingly little research devoted to measuring the impact of fiscal decentralization on economic growth, given that economic efficiency is the central argument used to support fiscal decentralization (Bardhan, 2002; Martínez-Vázquez and McNab, 2003). Among existing studies a mixed picture emerges of the effect of decentralization on growth rates. Initial contributions, summarised in table 1, tended to find that fiscal decentralization has a negative or negligible effect on economic growth (Davoodi and Zou, 1998, Woller and Philips, 1998, Zhang and Zou, 1998, Xie *et al.*, 1999 and Jin and Zou, 2005). These authors interpret their results as an indication that FD is already high, such that further decentralization may be harmful for economic growth. However, many of these studies focus on developing or transition economies, with China a specific focus of attention<sup>5</sup>.

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<sup>5</sup> On China, see also Lin and Liu (2000) and Jin *et al* (2005) who find some evidence of positive growth effects of FD. Akai and Sakata (2002) also suggest that initial studies have a 'cultural bias', due to their use of cross-country data which fails to accommodate the various cultural, historical, and institutional differences between included countries.

**Table 1**  
**SUMMARY OF THE EMPIRICAL LITERATURE**

**Papers finding a negative effect of FD on economic growth:**

<b>Study</b>	<b>Dataset</b>	<b>Dependent variable</b>	<b>Method</b>	<b>Decentralization measure</b>	<b>Other fiscal variables</b>	<b>Control variables</b>	<b>Growth Effect</b>	<b>Conclusions</b>
Davoodi & Zou (1998)	46 developing & developed countries (Unbalanced panel) 1970-1989	5 and 10 year averages of growth in real per capita output	Panel; Two way fixed effects	1. Direct spending by subnational governments (net of intergovernmental transfers) as a share of general government spending	Average tax rate proxied by the ratio of total tax revenues to GDP	Average growth rate of population, initial secondary school enrolment rate, initial per capita GDP, investment share to GDP	In developed countries, there is no relationship between FD and growth whereas this association is negative in developing countries. Average tax rate affects growth negatively	Fiscal policy growth effects are more related to functional government spending composition. Revenue assignment among levels of government may be 'wrong'
Woller and Phillips (1998)	23 LDCs countries Period 1974-1991	Annual, 3 or 5 year averages of per capita growth rate	Panel; One way fixed effects.	1. Local government share in total government revenues or spending. 2. Local government share (excluding grants-in-aid) in total revenues. 3. Local government share in total spending (less defence & social welfare)	—	Initial GDP, investment, secondary school enrolment and population growth Robust: openness, inflation level & variance, political & financial variables.	No strong association between FD and economic growth in LDCs. At best, weak inverse relationship between revenue FD and growth when using five years averages.	FD does not affect economic growth at national level among LDCs. It can affect economic development at the local level in LDCs.
Zhang & Zou (1998)	28 Chinese provinces. 1986-1992	Real growth rate of provincial income	Panel; One way fixed effects	1. Ratio of per capita consolidated (or budgetary provincial) spending to per capita consolidated or	Central and provincial revenue to national GDP Functional	Labor force growth rate, investment rate, openness, inflation rate.	A higher degree of spending fiscal decentralization is associated with lower provincial economic growth in China. Central	If local spending is already high, further decentralization may result in slower growth.

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Study	Dataset	Dependent variable	Method	Decentralization measure	Other fiscal variables	Control variables	Growth Effect	Conclusions
Zhang & Zou (1998)	(Extended case: 1980-9)			budgetary central spending. 2. Ratio of provincial extra-budgetary spending share in income to central extra-budgetary spending share of income.	composition of central and provincial budgetary spending		and provincial tax rate have negative effects on growth but not significant.	Central government may be in a better position to undertake public investment with externalities when the country is developing.
Xie et al. (1999)	US 1948 - 1994	Real per capital output growth rate	Time series.	1. Share of spending by each level of subnational government (local and state) in total government spending (excluding federal grants to lower levels of government).	Average tax rate proxied by the ratio of total government receipts to GDP	Labour force adjusted for education levels, investment, energy prices, openness, inflation & Gini (all variables in growth rates)	Local spending reduces growth, though low significance levels. State spending and combined state and local spending are highly insignificant. Average tax rate negative but not significant	The insignificant coefficients on local and state spending shares may imply that existing FD has been consistent with growth maximization. Further decentralization in public spending may be harmful for growth
Jin & Zou (2005)	30 Chinese provinces 1979-1993 & 1994-1999 (two different fiscal regimes)	Real GDP growth rate	Panel; One way fixed effects. No time dummies.	1. Provincial share in total budgetary expenditure or revenue 2. Provincial share in total extra-budgetary expenditure or revenue	Central and provincial tax rate measured by the ratio of central tax revenues & provincial tax revenues to GDP	Provincial investment, labour force growth rate, openness, lagged inflation.	1979-1993: growth is negatively associated with expenditure FD & positively with revenue FD. 1994-1999: growth has no significant link with provincial expenditure, and is negatively affected by provincial revenue.	Conventional wisdom (that local revenue should match expenditure as close as possible at sub-national level to improve efficiency and promote growth) does not apply to China.

**Papers finding a positive effect of FD on economic growth:**

Lin and Liu (2000)	28 Chinese provinces 1970-1993	Growth rate of real per capita GDP	Two way fixed effects	1. Marginal retention rate of locally collected budgetary revenue 2. Average retention rate of locally collected budgetary revenue	Fiscal capacity (proxy by moving average of per capita GDP)	Population, per capita investment growth, rural population share, relative farm prices, implementation of agricultural reform, private firms share in industrial output.	FD has a positive effect on growth. This effect is higher when using the marginal retention rate. Long-run effects are captured by lagging FD, finding larger effects on growth than with current FD.	The marginal retention rate is a better measure than average retention rate. FD has increased growth in China by improving efficiency of resource allocation rather than by inducing more investment
Akai & Sakata (2002)	50 US states 1992-1996 (average). Sub periods: 1992-1994 & 1994-1996	Average Growth rate of real per capita gross state product	Cross section(One way fixed effects)	1 Local government revenue or spending share in state + local government revenue or spending 2. Ratio of local government's own revenue to state + local revenue 3. Average of revenue and spending FD of indicator 1	This study do not control for public sector size	Population growth, lagged growth rate, high school enrolment ratio, pre-tax income Gini coefficient, southern states dummy, state's share in US patents, openness, democrats seats.	Spending FD and the average of spending and revenue FD (indicator 3) affect growth positively . Revenue FD and fiscal autonomy (indicator 2) do not significantly affect growth.	Prior negative effects were due to the use of data for countries that were in early stages of development and with large differences in history and culture
Thiessen (2003)	Averages for 21 OECD (& 4 middle income) countries. Period over 1973-1998	Average growth of income per working-age person	Cross country	1. Local share in consolidated government spending or revenue, and average of the two 2. Transformation of measure 1 to capture non-linearities	Public consumption to GDP and the fiscal balance are included as robustness checks (results not reported)	Initial income per worker, investment, school enrolment, sum of working-age population growth; technology growth; depreciation rate. volatility, openness	Spending and 'average' FD have a positive, significant effect on growth (but not robust). More robust: indicator 2 showing a non-linear association between FD and growth. Revenue FD and self-reliance.	FD promotes economic growth. However there is a hump shaped association between FD and growth, indicating an optimal degree of FD that

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Thiessen (2003)				(quadratic terms, spline functions) 3. Own revenues share in subnational revenues		Robust: inflation rate, federal system dummy, financial	indicators (3) not significant	maximises growth. FD promotes growth by increasing investment and total factor productivity
Ebel and Yilmaz (2004)	6 Central and Eastern European countries	Per capita GDP growth	Bivariate estimation	1. Tax revenues on which local governments rule (a); on which local governments do not rule (b); total inter-governmental transfers (c); transfers on which local government do not rule (d); local non-tax revenue (e). All in shares of total local government revenue	—	—	Local tax (a) and non-tax revenue autonomy (e) represent own-source revenue for local governments and have positive impacts on growth. Fiscal dependency variables (c & d) not significant. Tax sharing (b) has a negative impact.	FD means that local governments have authority to exercise own source taxation. If FD is defined as revenue autonomy instead of local share of public spending, the association with growth becomes positive
Meloche et al. (2004)	10 Central and Eastern European Countries (3 observations per country, between 1997 and 2000)	Annual per capita GDP growth rate	Two way fixed effects	1. Local share in aggregate government spending (net of grants) 2. Indicators used in Ebel and Yilmaz (2002). (a-e) 3. Ratio of own source revenues in: total local revenues (f); total government revenue (g)	—	Initial GDP per capita, secondary school enrolment ratio, annual population growth and investment	Non-tax autonomy (e) and revenue autonomy (g) has a positive effect on growth, whereas fiscal dependency has a negative one.	The composition of local revenues, rather than size, is relevant for growth. Local revenue controlled by local governments increases growth. Local revenue controlled centrally reduces growth

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limi (2005)	51 low, middle and high income countries 1997-2001 (average)	Average growth rate of real GDP <i>per capita</i> over 1997-2001	Cross section	1. The share of local expenditure (excluding state spending) in total government spending	Total tax revenues as a share of GDP	Political freedom (alone and interacted with FD), population growth, initial secondary school enrolment, initial <i>per capita</i> GDP, income & regional dummies	Fiscal decentralization significantly increases economic growth (but effect slight). Interaction between FD and political freedom is not significant.	It takes considerable time for FD to have a visible effect on economic growth. Accounts for endogeneity using fifth lagged value as instruments for all independent variables
Jin et al. (2005)	29 Chinese provinces 1970 - 1999	Growth of non-state-non-agricultural employment	Panel; Two way fixed effects	1. Ratio of local expenditure to central expenditure in a province 2. Provincial marginal revenue retention rate	—	Lagged <i>per capita</i> GDP	Revenue FD (indicator 1) has positive effects on private employment. However, the effect of the provincial marginal retention rate (indicator 2) on employment is much higher than the average	If local government is able to keep a significant share of increased tax revenue, then there are incentives to support market development. Endogeneity not an issue because of negative effect of lagged employment on marginal retention rate
Stansel (2005)	314 US metropolitan areas 1960 - 1990	Population growth and real <i>per capita</i> income growth	Cross section	1. Initial number of county, municipal and township governments per 100,000 residents 2. Initial number of public school districts per 100,000 residents	—	Previous population growth, initial population, initial real <i>per capita</i> income, initial unemployment, initial manufacturing share, working-age	The number of county and municipal governments found to have positive relationship with both population growth and <i>per capita</i> income growth. No statistically significant effect found for township	This author focus on the decentralization dimension based on the horizontal dispersion of power among individual lower-level governments

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Stansel (2005)				3. Initial central-city share of metro area population (The higher is this ratio the lower is decentralization)		population with 16+ years of schooling.	and school districts. Central-city share of metro area population has a negative effect	Examining metro areas in the same nation avoids using data from a set of widely disparate countries.
Thornton (2007)	Average real GDP growth per capita	Cross section		1. Average tax revenues of sub-national governments stemming from the tax base and tax rates over which they have full discretion 2. The square of indicator 1	No other fiscal variables included.	Initial income per capita, investment, secondary school enrolment, growth of the working-age population, dummy variable for federal systems.	When the measure of revenue FD is limited to revenues over which subnational government has full autonomy, impact on economic growth is not significant. Quadratic term also not significant	Much of the literature has not distinguished appropriately between administrative and substantive FD. High local government revenue and expenditure shares do not necessarily indicate high local autonomy



A number of factors may explain this negative effect. Firstly, as Davoodi and Zou (1998) and Zhang and Zou (1998) argue, FD may be particularly harmful for economic growth in the early stages of development, where the administrative capability of local governments is insufficient, local officials may not be responsive to preferences of local residents, and local governments in those countries may be constrained by the central government. Secondly, fiscal policy-growth effects may be more related to the functional composition of government spending or type of tax rather than to fiscal decentralization *per se*. If sub-national governments spend more on items with low growth effects such as social welfare whereas national governments spend more in growth enhancing items such as infrastructure, then we could expect to observe a negative, endogenous relationship between FD and economic growth. We examine these latter arguments with respect to our OECD context in section 4.

More recent studies, especially those examining the US or OECD countries, find some evidence of a positive relationship between FD and growth; see Akai and Sakata (2002), Thiessen (2003), Ebel and Yilmaz (2004), Meloche *et al.* (2004), Iimi (2005), Jin *et al.* (2005) and Thornton (2007). One source of difference in results between the early, and recent, studies may be the FD measure used. Recognising that high sub-national spending and revenue shares do not necessarily reflect high local autonomy, then, if autonomy is the key growth-enhancing characteristic of FD, early studies probably overstated the degree of effective decentralization since some local revenues/expenditures are typically controlled or mandated by central governments<sup>6</sup>.

By contrast, recent studies have focused on a more restricted measure of FD: local government spending net of conditional or discretionary transfers (Ebel and Yilmaz, 2004; Meloche *et al.*, 2004) and local revenues over which sub-national governments have some degree of control over the tax rate, the tax base, or both (Akai and Sakata 2002; Ebel and Yilmaz, 2004; Meloche *et al.*, 2004; Thornton, 2007). In a similar vein Lin and Liu (2000) and Jin *et al.* (2005) use the marginal retention rate of locally collected revenue to reflect the degree of FD arguing that this captures the fiscal incentives for local government to promote local business development. Using these narrower FD measures, a positive impact of FD on economic growth generally finds more support<sup>7</sup>.

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<sup>6</sup> Furthermore, Lin and Liu (2000) criticise the measure employed in Zhang and Zou (1998) - the ratio of provincial spending to total central spending - because a large province would appear to have a high degree of fiscal decentralization merely by being more populous.

<sup>7</sup> An exception to these fiscal decentralization measures is Stansel (2005) who focuses on the horizontal dispersion of power among lower tiers of government using the number of county,



Nevertheless, the recent literature provides limited guidance on the growth effects of FD in OECD countries. Recent evidence including OECD countries has tended to focus on the US (Akain and Sakata, 2002; Stansel, 2005) or include OECD countries among more diverse developed-developing country samples (limi, 2005). Thiessen (2003) and Thornton (2007) examine samples of OECD countries directly. Both use cross-section methods. Thornton (2007) argues that recognising the extent of local autonomy is important, while Thiessen (2003) finds evidence of a growth-maximising degree of FD. That is, growth is enhanced by converging towards intermediate levels of decentralization - from either high or low initial levels.

Using more extensive annual panel data and more flexible dynamic econometric methods we show below that, for a variety of measures of local fiscal autonomy, the important convergence appears to be towards the same levels of *revenue and spending* decentralization. That is, our evidence suggests raising revenue decentralization and/or lowering spending decentralization would be growth-enhancing on average for OECD countries. As far as we are aware, our empirical evidence is the first to support Oates (1972) hypothesis that FD efficiency benefits become greater when there is a close match between revenue discretion and spending assignments at sub-national levels. Jin and Zou (2005) also tested simultaneously for growth effects of expenditure and revenue decentralisation across Chinese provinces, but they reject Oates' hypothesis. We obtain our results after controlling for endogeneity; we find some effects running from growth to fiscal decentralisation in line with the arguments of Bahl & Linn (1992) and Martínez-Vázquez and McNab (2003) that efficiency gains from, and demand for, FD emerge as economies grow. Most previous empirical FD studies have not control for endogeneity, at least in a systematic way; an exception being limi (2005) who instrumented for FD in his cross section study using fifth lagged values<sup>8</sup>. Using flexible dynamic panel methods, and the PMG in particular, recognises that efficiency gains may take some time to materialise and occur at different rates in different countries.

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municipal and township administrations per 100,000 residents in 314 US metropolitan areas. Using this measure, Stansel (2005) finds a positive and significant effect of FD on the growth of both population and real per capital income.

<sup>8</sup> Zhang and Zou (1998), Xie et al. (1999), Lin and Liu (2000), Thiessen (2003) and Jin et al. (2005) acknowledge potential endogeneity bias but do not control for it - due to small sample sizes and the difficulty of finding good instruments. Lin and Liu (2000) show that, for their case, the Hausman test of the potential endogeneity of the FD variable fails to reject the hypothesis that the marginal retention rate is exogenous. Jin et al. (2005) regress marginal retention rates on lagged growth rates and find a negative rather than positive coefficient, rejecting a positive upward bias in their estimated FD growth effect for China.

## 4. DECENTRALIZATION MEASURES, DATA AND ECONOMETRIC METHODS

### Decentralization Measures

The data used in our econometric analysis is based on OECD *General Government Accounts* (various editions). This source uses *accrual* accounting, providing a better picture of commitments undertaken by governments than traditional cash accounting. However, the information available from this source starts in 1990 or 1995 for most of the countries. We have extended this time-series using annual IMF, *Government Finance Statistics* (GFS), data. This source covers a longer period, back to 1972, but is based on the cash criterion. We follow Stegarescu (2005) and construct two measures of expenditure decentralization and three measures of revenue decentralization. In all cases these decentralization measures are calculated as shares of consolidated general government spending or revenue. For expenditures we calculate:

$$\text{Direct spending} = \frac{\text{Subnational spending} - \text{Transfers from subnational to central government}}{\text{Consolidated general government spending}} \quad (1)$$

$$\text{Self-financed spending} = \frac{\text{Subnational spending} - \text{Grants from other governments}}{\text{Consolidated general government spending}} \quad (2)$$

Indicator (1), ‘Direct spending’, subtracts transfers paid to central government, thus reporting amounts spent directly at each local administrative level.<sup>9</sup> Indicator (2), treats subnational expenditure net of grants received from central government as ‘self-financed spending’, reflecting spending from ‘own resources’ (Stegarescu, 2005). As a measure of locally-financed spending it may be regarded as a more appropriate indicator of local autonomy.

On the revenue side, a measure of ‘own revenue’ decentralization is:

$$\text{Own revenue} = \frac{\text{Subnational revenue} - \text{Grants from other governments}}{\text{Consolidated general government revenue}} \quad (3)$$

Indicator (3) subtracts grants received from other levels of government from total subnational revenues, to capture ‘own resources’<sup>10</sup>.

<sup>9</sup> These transfers refer to the category, ‘Grants to other general government units’ (Government Finance Statistics Manual, 2001). They can be current or capital grants, depending on purpose, and they include the tax levied by one level of government but transferred to other levels of government. Transfers from sub-national governments to central governments are only significant for Spain and, especially, for Greece. For the rest of the sample it accounts for a small share of sub-national government spending (average: 1.9%).

<sup>10</sup> Ebel and Yilmaz (2004) contend that unconditional transfers, and transfers given under objective criteria, could be included under revenue decentralization. However, we subtract all transfers to leave only those revenues generated by subnational governments and which are not discretionarily fixed by central government (Stegarescu, 2005). The other indicator



However, there are also locally collected taxes over which local governments have little or no control. Arguably these taxes should also be subtracted to measure autonomous local resources appropriately. Unfortunately, there is no official OECD data distinguishing between locally-collected taxes controlled by local versus central governments for a broad sample of countries.<sup>11</sup> However, following the methodology of OECD (1999, 2001) for Central and Eastern European Countries, Stegarescu (2005) provides data for 21 OECD countries from 1975 to 2000 on the locally collected taxes, decomposed into the following categories:

- A Tax bases or/and rates determined by *subnational* governments
- B Tax revenues *shared* between subnational and central governments *of which*:
  - B1 Shared taxes: subnational level determines revenue split
  - B2 Shared taxes: subnational level has to consent to revenue split
  - B3 Shared taxes: central government unilaterally determines revenue split
- C Tax bases or/and rates determined by *central* governments

This allows two additional revenue decentralization measures to be calculated: autonomous own revenue (indicator 4 below) and the autonomous plus shared own revenue (indicator 5 below).

$$\text{Autonomous own revenue} = \frac{\text{Own tax revenue (A)} + \text{Nontax \& capital revenue}}{\text{Consolidated general government revenue}} \quad (4)$$

$$\begin{aligned} \text{Autonomous \& Shared own revenue} = \\ \frac{\text{Own tax revenue (A)} + \text{Shared tax revenue (B1 \& B2)} + \text{Nontax \& capital revenue}}{\text{Consolidated general government revenue}} \quad (5) \end{aligned}$$

Indicator (4) is the share of taxes for which subnational governments determine the tax base/rates (category A), plus local non-tax and capital revenue. The autonomous-plus-shared own revenue (indicator (5)) is the share of taxes in indicator (4), plus shared taxes where the revenue split is determined, or consented, by subnational governments (categories B1 and B2). These two revenue decentralization measures provide a narrower definition of local autonomy in public revenues but are only available for a more limited sample of countries and years. Thus, for Indicators (1), (2) & (3) above our sample is composed of 23 OECD countries from the early 1970s to 2005. For Indicators (4) & (5) data are restricted to 18 countries from 1975 to the late 1990's (see appendix I for details). We therefore use (4) and (5) as robustness checks on the other indicators.

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used in the literature, the marginal retention rate, is not directly observable; calculation would require simulations for each type of revenue; see Thiessen (2003).

<sup>11</sup> It is available for some Central and Eastern European Countries for 1997-2000; see OECD (1999) and (2001).

Data

Table 2 shows the period averages for each FD Indicator by OECD country. These cover state and local governments combined since only nine countries have a federal system showing state spending and revenue separately (appendix II shows disaggregated data). Each indicator shows substantial variation across countries, with Canada, Switzerland and the US showing the greatest degrees of FD. In those countries, subnational governments account for approximately half of the consolidated public spending and revenue. By contrast, Greece, Portugal, New Zealand and Luxembourg have highly centralised governments which control more than 85% of the public sector size.

**Table 2**  
**STATE AND LOCAL SHARES IN AGGREGATE GOVERNMENT SPENDING AND REVENUE ACROSS OECD COUNTRIES: 1970-2005**

Country	Own calculations based on OECD National Accounts (1972-2005)			Stegarescu (2005): calculations based on IMF, GFS (1975-2000)	
	State & local direct spending	State & local self-financed spending	State & local own revenue	State & local autonomous revenue	State & local autonomous & shared revenue
Australia	44.6	22.2	27.4	27.4	27.4
Austria	30.9	23.8	27.4	14.3	35.7
Belgium	22.5	10.2	10.4	14.4	23.6
Canada	60.5	51.0	52.2	55.3	55.3
Denmark	56.3	31.7	32.5	31.1	31.1
Finland	37.8	27.2	26.6	32.0	32.0
France	16.0	11.6	12.1	18.3	18.3
Germany*	41.6	35.6	35.1	24.5	53.3
Greece	4.8	4.8	3.6	—	—
Iceland	22.3	19.7	21.5	22.2	22.2
Ireland	32.5	15.9	14.4	10.5	10.5
Italy	24.9	13.5	11.3	7.7	7.7
Luxembourg	14.4	9.5	8.6	11.3	11.3
Mexico	18.5	18.2	20.6	—	—
Netherlands	34.8	11.7	11.6	10.7	10.7
New Zealand	11.6	11.4	10.8	9.3	9.3

(Sigue)

(Continuación)

Country	Own calculations based on OECD National Accounts (1972-2005)			Stegarescu (2005): calculations based on IMF, GFS (1975-2000)	
	State & local direct spending	State & local self-financed spending	State & local own revenue	State & local autonomous revenue	State & local autonomous & shared revenue
Norway	35.0	29.0	24.9	26.4	26.4
Portugal	10.7	7.5	8.1	5.4	5.4
Spain	25.7	13.0	15.6	14.0	17.2
Sweden	44.2	35.3	33.6	41.4	41.4
Switzerland	57.6	50.7	48.0	62.8	65.6
United Kingdom	28.4	12.9	12.9	15.7	15.7
United States	46.8	46.8	41.6	45.0	45.0
<b>Unweighted Mean</b>	<b>31.4</b>	<b>22.3</b>	<b>22.2</b>	<b>23.8</b>	<b>26.9</b>

Source: OECD: National Accounts of OECD Countries - Vol. IV: General Government Accounts. IMF: Government Finance Statistics Yearbook, and Stegarescu (2005).

\* Data for Germany before 1991 refer to West Germany.

Differences across countries tend to be higher towards the beginning of the period. For example, the standard deviation of logs of state and local direct spending –the usual  $\sigma$ -convergence indicator– decreased from 0.77 in 1974 to 0.68 in 2003 (from 0.74 to 0.63 for self-financed spending). The dispersion in own revenue also diminished from 0.31 to 0.27. Countries with high (low) initial levels of decentralization generally reduced (increased) these, confirming the convergence trend in the fiscal decentralization process identified by Thiessen (2003).

An important feature of these data is that, with the exception of Mexico, state and local direct spending shares are higher than state and local revenue shares. That is, subnational governments depend on central government transfers to finance their spending. Self-financed subnational spending is generally close to the subnational own revenues; that is, subnational governments do not run large deficits after taking into account transfers from central governments<sup>12</sup>.

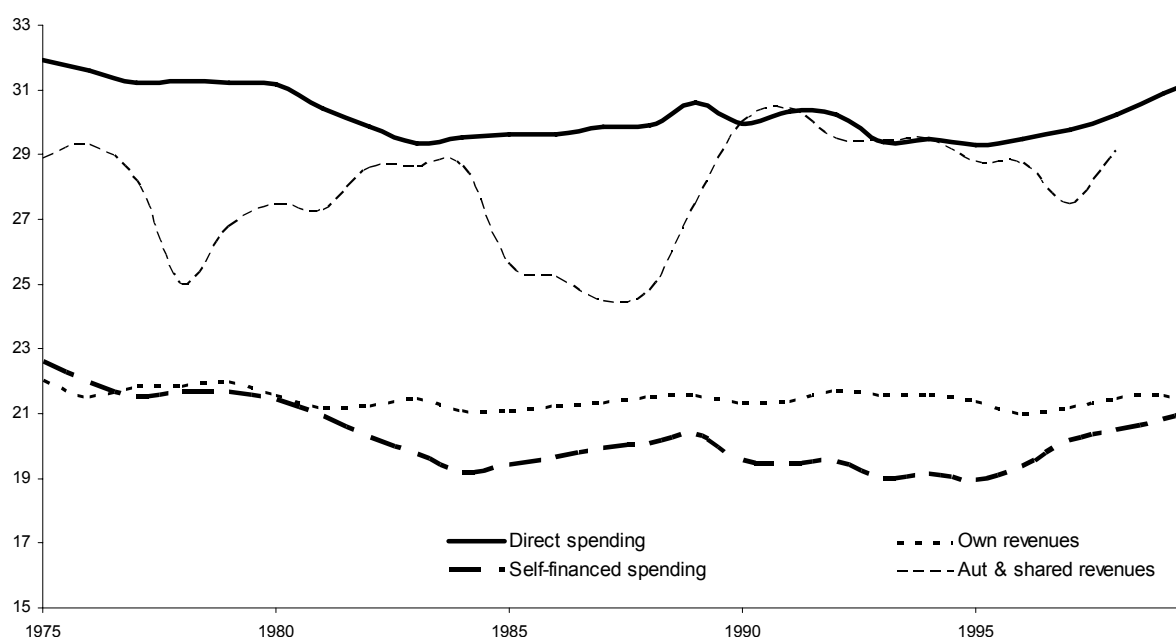
Figure I shows the mean values across OECD countries between 1974 and 2003. This reveals quite different patterns for revenue and spending

<sup>12</sup> Surprisingly, the Stegarescu (2005) database shows higher subnational revenue shares than our OECD-based database despite the fact that the Stegarescu measure defines local revenues more narrowly. This could be due to different countries/time periods and/or differences in the main data source (IMF Government Finance Statistics vs. OECD National Accounts). There are also numerous missing values for some of the 21 countries in the Stegarescu database.

decentralization. Direct and self-financed spending decentralization in the OECD decreased on average during the 1970s and early 1980s, trending upwards only from the early-to-mid 1990s. By contrast, own revenue decentralization has remained fairly constant throughout the period. ‘Autonomous and shared’ revenues (indicator 5) reveal more variation without any clear trend over time, but this pattern may partly reflect missing values for some of the countries in the series.

**Figure I**

**STATE AND LOCAL SHARES IN CONSOLIDATED AGGREGATE GOVERNMENT SPENDING AND REVENUE (OECD UNWEIGHTED MEAN: 1975-2002)**



**Econometric Methods**

Our econometric analysis follows the approach of Davoodi and Zou (1998) and Xie *et al.* (1999) who consider a production function with two inputs: private capital and public spending. Public spending is carried out by three levels of government: federal, state and local. Assuming a Cobb-Douglas production function with constant returns to scale, these authors show that the long-run growth rate of per capita output is a function of the tax rate and the federal, state and local share in aggregate government spending. The optimal government spending shares of each administrative level match the growth elasticity of this administration relative to the sum of the elasticities for all administrations. If the local spending share is below (above) this optimal level, further decentralization enhances (retards) economic growth.

The theoretical models of Davoodi and Zou (1998) and Xie *et al.* (1999) recognise that consolidated government spending must be financed by tax revenue, such that tests of the growth effects of FD need to recognise the

government budget constraint<sup>13</sup>. In addition to production function related variables, we therefore also include the general government revenue/GDP ratio as a measure of the overall fiscal burden. Surprisingly, most recent empirical studies summarised in table I have failed to control for this fiscal burden, giving rise to potential bias in their estimates of the FD effects on growth<sup>14</sup>.

Our estimating equation uses the pooled mean group (PMG) model of Pesaran *et al.* (1999), which allows for heterogeneous short-run effects across countries but homogeneous long-run effects. The PMG regression takes the following ‘error correcting’ form:

$$\Delta g_{it} = \phi(g_{it-1} - \beta F_{it-1}) + \sum_{j=1}^J \gamma_{0ij} \Delta g_{it-j} + \sum_{l=0}^L \gamma_{1il} \Delta F_{it-l} + \varepsilon_{it} \quad (6)$$

where  $i$  indicates the country,  $t$  is time,  $g$  is the rate of growth of GDP,  $F$  is a matrix of fiscal and control variables,  $\phi$ ,  $\beta$  and  $\gamma$  are parameters to be estimated and  $\varepsilon_{it}$  a classical error term<sup>15</sup>. In particular, the  $\beta$  parameter vector measures the homogeneous long-run (level) effect of the fiscal and control variables,  $\gamma_0$  and  $\gamma_1$  measure the (heterogeneous) short-run growth responses (to lagged growth and fiscal/control variables respectively), and  $\phi$  captures the adjustment towards long-run equilibrium<sup>16</sup>. Our interest here is primarily with the long-run parameters, in particular the long-run effect of FD on economic growth.

Previous studies, reviewed in table I, have typically sought to capture the long-run effect of FD on growth by using multi-year averages (Woller and Philips, 1998, Akai and Sakata, 2002, Thiessen, 2003, Iimi, 2005, Stansel, 2005 and Thornton, 2007) or lagged values of FD in their estimations (Lin and Liu, 2000). Using dynamic panel methods, and the PMG in particular, recognises that efficiency gains need some time to materialise in a highly flexible way. The heterogeneous short-run transitory effects in the PMG also allow for differences across countries in their short-run responses of growth to changes in each independent variable. By focusing on a relatively homogenous set of high income

<sup>13</sup> See Bleaney *et al.* (2001) and Kneller *et al.* (1999) for similar arguments relating to tests of fiscal policy on growth more generally.

<sup>14</sup> For example, if FD leads to a lower public sector size, because of the increased competition among levels of administration, and there is a negative relationship between the public sector size and growth, then there will be a positive bias in the estimation of the growth effects of FD.

<sup>15</sup> Results reported below were estimated using Pesaran’s GAUSS programme and Stata `xtpmg` command.

<sup>16</sup> Using a Mean Group (MG), rather than PMG, model allows long-run, as well as short-run, heterogeneity with the PMG restricted tested using a Hausman test. However running an MG model requires many more degrees of freedom. The PMG estimator has the additional advantage over the MG estimator in that it performs well even when, as is the case here,  $N$  is small. Pesaran *et al.*, (1999) argue that the MG estimator is best treated as providing better information about the short-run and error correction coefficients of the PMG model (Pesaran *et al.*, 1999).



OECD countries we hope to overcome Akai and Sakata's (2002) concern over international differences in history, institutions, culture etc., but allowing for short-run heterogeneity facilitates a more accurate estimate of long-run effects.

A disadvantage of the PMG estimator over simpler methods, such as fixed effects models which impose homogeneity of all marginal responses, is that unless the available time series is long a degrees of freedom problem is soon reached. For the dataset available here this requires choices over restrictions to lag lengths and the set of included right-hand-side (RHS) variables. For this reason we generally restrict the RHS variables to include three control variables (the investment rate, employment growth and the ratio of general government revenue to GDP). This allows us to use up to two lags and up to four FD variables (subnational spending and revenue decentralization; disaggregated by local and state government where possible). Restricting our regressions to include a maximum of two lags nevertheless allows the effect of shocks to persist over many periods via the inclusion of the lagged dependent variable.

As a robustness check we include openness and inflation as controls (at the cost of reduced lag length) since these variables have often been employed previously (see table 1)<sup>17</sup>. Openness is expected to affect growth positively, via the resource allocation benefits of external competition (Feder, 1983). Inflation can have either positive or negative effects on growth though the latter is more usually observed (Zhang & Zou, 1998).

## 5. RESULTS

### 5.1. PMG Results

Table 3 shows regression results using both the direct spending decentralization measure (indicator 1: in columns 1-3) and self-financed spending decentralization (indicator 2: in columns 4-5). We report only the long-run ( $\beta$ ) parameters in order to save space (full results are available from the authors on request). All regressions include the overall revenue/GDP ratio and two production function 'controls': the investment ratio and employment growth<sup>18</sup>. Investment and employment confirm the expected positive and significant relationships to growth. Regressions including openness and inflation are discussed below; they have little impact on the other

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<sup>17</sup> The school enrolment ratio has been also included as a control variable in some studies on the effects of FD and economic growth. However, this variable is not reliable on an annual basis for OECD countries.

<sup>18</sup> Like most growth regression studies, data for investment ratios is more readily available and generally more reliable than capital growth data. We also prefer employment to labour force growth because the former can account for the cyclical dimension to output growth better.



parameters shown in table 3. The table also shows the importance of including the overall revenue burden which can be seen in all regressions to impact negatively and significantly on growth. That is, increases in overall fiscal size retard growth for a given level/type of decentralization.

Regression results in columns 3 and 5 (using direct and self-financed spending respectively) represent our preferred specifications - including both spending and revenue decentralization. This allows us to test Oates (1972) FD hypothesis that efficiency is enhanced by 'matching' revenue and spending decentralization. These reveal a negative and significant effect of state and local direct spending shares, or self-financed spending shares, on economic growth. Conversely there is a positive, significant effect of larger state and local revenue shares on economic growth.

Together with the evidence in table 2 that state and local direct spending shares are higher than revenue shares in our sample countries, this implies that a reduction of this gap, achieved either by reducing subnational spending shares or by increasing revenue shares, would increase economic growth.<sup>19</sup> Since these results represent marginal effects associated with changes from current settings they cannot confirm whether raising revenue shares to current spending share levels, or vice versa, would necessarily increase growth. However they do confirm that reductions in state/local spending shares and financing a greater fraction of this spending by state/local taxes would be growth-enhancing; offering strong support to Oates' 'matching' hypothesis.

Including either state and local revenue shares or spending shares (columns 1, 2 & 4), reveals that false conclusions may be drawn when one FD variable is omitted. Including only state and local spending continues to generate a negative parameter but which is not always significantly different from zero. Including only state and local revenues appears essentially to generate a zero (but negatively signed) growth effect. It could be argued that our 'matching' evidence is due to collinearity between revenue and spending decentralization – tending towards equal and opposite signed parameters. Indeed, sub-national direct spending and own revenue reveal a 0.89 between-country correlation and a 0.63 within-country correlation. In order to analyse whether these high correlations are driving our results we implement the regression collinearity diagnostic procedures proposed by Belsley (1991), based on the interrelationships among the independent variables. As a rule of thumb, Belsley *et al.* (1991) suggest that if the condition number is 30 or higher, then there may be collinearity problems<sup>20</sup>. At 19.5, the

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<sup>19</sup> This result contrasts with the empirical evidence for China by Jin and Zou (2005), who also introduce simultaneous spending and revenue decentralization. For China they find a positive effect for revenue decentralization when this measure was higher than spending decentralization and a negative effect when it was lower.

<sup>20</sup> The condition number is the condition index with the largest value; it equals the square root of the largest eigenvalue divided by the smallest eigenvalue. A condition number of 1

higher condition number for our set of variables is well below this value. Using the Variation Inflation Factor (VIF)<sup>21</sup>, leads to the same conclusion: the highest VIF is 4.69 (sub-national government spending), well below the suggested rule of thumb of 10, from which collinearity problems should be further investigated (Hair *et al.*, 1995). Nevertheless, as a further check, we orthogonalised subnational spending and revenue by creating a set of orthogonal variables, using a modified Gram-Schmidt procedure (Golub and Van Loan 1996), such that the effects of the preceding variable have been removed from each variable. Thus, in column 6 we transform subnational government direct spending into a new variable in which the effect of the constant is removed and transform subnational government revenue into a new variable in which both the effects of the constant and subnational government spending are removed<sup>22</sup>. The interpretation of the orthogonalized variable is the independent variable in question minus the linear influences of the variables upon which it is orthogonalized. Results show that we find again a negative growth impact of spending decentralisation and a positive for revenue decentralisation. We reach the same conclusion when orthogonalising self-financed subnational spending and subnational revenue in column 7.

Columns 8 & 9 disaggregate state and local direct spending and revenues into their two components. This reduces the sample to the nine federal countries having separate state and local spending<sup>23</sup>. With one exception (state self-financed spending becomes zero) we continue to find negative spending and positive revenue share effects associated with the state and local components. The largest parameters are associated with the local administration level, because the difference between spending and revenue is higher for local government than for the state level. This is consistent with there being greater efficiency gains from convergence between sub-national spending and revenue when the initial mismatch is higher. These results again indicate that a convergence between expenditures and revenues, at both the local and state level, would enhance economic growth, reinforcing the importance of testing for the growth effects of spending and revenue decentralization simultaneously. Surprisingly, few previous empirical studies have tested directly for both shares simultaneously; Jin and Zou (2005) is an exception.

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means that independent variables are orthogonal. Large values of condition number indicate rank deficiency of the independent variables matrix and that estimates are sensitive to small changes in the data. This number has been obtained applying the `coldiag2` command in Stata.

<sup>21</sup> VIF is an index which measures how much the variance of a coefficient is inflated by the existence of multicollinearity. Large VIF values indicates that severe MC effects are present. VIF has been obtained applying the `collin` command in Stata.

<sup>22</sup> We orthogonalize these variables by using the Stata command `orthog`.

<sup>23</sup> Since the PMG calculates means of individual country estimations, it is not possible to introduce variables taking zero values for a country in every year.

**Table 3**  
**POOLED MEAN GROUP REGRESSIONS: 1972-2005**

Regression:	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
Decentralized Spending measure	Direct		Direct	Self-financed	Self-financed	Direct	Self-financed	Direct	Self-financed
Method:	PMG (2 lags)	PMG (2 lags)	PMG (2 lags)	PMG (2 lags)	PMG (2 lags)	PMG (2 lags)	PMG (2 lags)	PMG (2 lags)	PMG (2 lags)
General revenue ratio	-0.052 (-4.41)	-0.036 (-3.15)	<b>-0.053</b> <b>(-4.50)</b>	-0.042 (-3.43)	-0.042 (-3.56)	-0.053 (4.50)	<b>-0.050</b> <b>(4.24)</b>	-0.067 (-1.51)	-0.083 (-2.04)
State & local spending	-0.050 (-3.80)		<b>-0.074</b> <b>(-4.92)</b>	-0.019 (-1.30)	-0.052 (-2.24)	-0.497 (2.19)	<b>-0.550</b> <b>(2.40)</b>	-0.141 (-3.92)	-0.104 (-1.52)
State & local own revenue		-0.014 (-0.76)	<b>0.056</b> <b>(2.83)</b>		0.060 (1.98)	0.353 (2.84)	<b>0.341</b> <b>(2.79)</b>	0.067 (1.02)	-0.016 (-0.22)
Investment Ratio	0.053 (2.28)	0.051 (2.25)	<b>0.051</b> <b>(2.28)</b>	0.066 (2.66)	0.080 (3.47)	0.051 (2.28)	<b>0.528</b> <b>(11.61)</b>	0.411 (5.04)	0.183 (2.60)
Employment Growth	0.637 (13.44)	0.637 (15.03)	<b>0.585</b> <b>(13.28)</b>	0.577 (11.83)	0.535 (11.32)	0.585 (13.28)	<b>0.061</b> <b>(2.65)</b>	0.941 (11.68)	0.781 (9.60)
Countries / Obs.	23 / 726	23 / 726	<b>23 / 726</b>	23 / 726	23 / 726	23 / 726	<b>23 / 726</b>	9 / 283	9 / 283

Note: t-statistics in parentheses below parameters.

## 5.2. Instrumental Variables

Our estimates in sub-section 5.1 of the impact of FD on economic growth may be biased if, as Bahl & Linn (1992) and Martínez-Vázquez and McNab (2003) argue, the efficiency gains from FD emerge as economies grow and mature or decentralization is generally demanded at relatively high levels of per capita income. In this sub-section we account for potential endogeneity bias affecting the FD variables, investment and openness, using their third and fourth lagged values as instruments.

Instruments must satisfy two requirements: they must be (a) correlated with the included endogenous variables; and (b) orthogonal to the error process. The first condition can be tested using the F-statistic and the partial  $R^2$  between the excluded instruments and the endogenous regressors of the first-stage. However, these measures will not reveal the weakness of a particular instrument if remaining instruments are highly correlated with the endogenous variables (Staiger and Stock, 1997). The Shea partial  $R^2$  (Shea, 1997) overcomes this by taking into account the cross-correlations among the instruments. Baum *et al.*, (2003) suggest, as a rule of thumb, that if the partial  $R^2$  is large whereas the Shea partial  $R^2$  measure is small, we may conclude that the instruments lack sufficient relevance to explain all the endogenous regressors<sup>24</sup>.

Table 4 (lower section) shows both the Shea partial  $R^2$  and the partial  $R^2$  (in brackets) for the first stage regression. These confirm that the Shea partial  $R^2$ s are relatively high and differences between the two measures are small - with the possible exception of the disaggregation between state and local decentralization. Table 4 also reports the Anderson under-identification test of the hypothesis that excluded instruments are uncorrelated with the endogenous regressors. This test is rejected in all estimations, indicating that the excluded instruments are relevant in explaining our endogenous variables.

However, high Shea partial  $R^2$  and rejecting the Anderson test does not guarantee that weak instrument problems are absent (Hall *et al.*, 1996). Stock and Yogo (2005) propose a test based on the F-stat form of the Cragg-Donald statistic for the presence of weak instruments. They have tabulated critical values for the Cragg-Donald statistic, but only for up to three endogenous variables, whereas our regressions include more than three. Nevertheless, since these critical values are a decreasing function of the number of endogenous variables, we can conclude that the Cragg-Donald F statistics of Table 4 would reject the null hypothesis of weak instruments<sup>25</sup>.

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<sup>24</sup> The distribution of Shea's partial  $R^2$  statistic has not been derived.

<sup>25</sup> Stock and Yogo (2005) tabulate critical values for the Cragg-Donald statistic for two definitions of 'weak' instruments. The first definition is that "a group of instruments is weak if the bias of the IV estimator, relative to the bias of ordinary least squares (OLS), could exceed



**Table 4**  
**INSTRUMENTAL VARIABLE REGRESSIONS: 1972-2005**  
 Instruments: 3<sup>rd</sup> & 4<sup>th</sup> lagged values

Regression:	[1]	[2]		[3]	[4]
Decentralized Spending measure	Direct	Self-financed		Direct	Self-financed
Method:	PMG/IV (2 lags)	PMG/IV (2 lags)		PMG/IV (2 lags)	PMG/IV (2 lags)
General revenue ratio	-0.004 (-0.28)	-0.017 (-1.17)		0.084 (2.56)	-0.091 (-3.51)
State & local spending	-0.083 (-7.04)	-0.082 (-3.10)	State spending	-0.112 (-7.87)	0.068 (1.09)
State & local own revenue	0.119 (5.81)	0.115 (3.53)	State own rev.	0.137 (5.25)	-0.142 (-2.21)
			Local spending	0.114 (1.72)	-0.415 (-5.54)
			Local own rev.	0.021 (0.24)	0.566 (6.29)
Investment ratio	-0.091 (-3.38)	-0.064 (-2.27)		-0.215 (-4.16)	-0.012 (-0.19)
Employment Growth	0.525 (14.44)	0.654 (15.57)		0.528 (10.73)	0.594 (10.99)
Countries / Obs.	23 / 645	23 / 645		9 / 254	9 / 254
Correlated with the included endogenous variables: Shea partial R <sup>2</sup> (overall R <sup>2</sup> in brackets)					
Shea partial R <sup>2</sup> : Revenue ratio	0.60 (0.73)	0.55 (0.72)		0.56 (0.73)	0.43 (0.74)
Shea partial R <sup>2</sup> : State & loc exp	0.46 (0.70)	0.27 (0.59)	State spending	0.32 (0.82)	0.02 (0.55)
Shea partial R <sup>2</sup> : State & loc rev	0.31 (0.61)	0.24 (0.59)	State own rev.	0.24 (0.66)	0.03 (0.62)

(Sigue)

a certain threshold  $b$ ". The second is that the instruments are weak "if the conventional  $\alpha$ -level Wald test based on IV statistics has an actual size that could exceed a certain threshold  $r$ ". This test has good power, especially when the number of instruments is large as in our case. For the case of three endogenous variables, a desired maximal bias of 10%, and up to 14 excluded instruments (as in Table 4) the critical value is 10.25 (Stock and Yogo, 2005, table 1). Similarly, the critical value for two endogenous variables, desired maximal bias of 10%, and 14 excluded instruments, is 36.36 (table 2).

(Continuación)

<b>Regression:</b>	<b>[1]</b>	<b>[2]</b>		<b>[3]</b>	<b>[4]</b>
<b>Decentralized Spending measure</b>	<b>Direct</b>	<b>Self-financed</b>		<b>Direct</b>	<b>Self-financed</b>
<b>Method:</b>	<b>PMG/IV (2 lags)</b>	<b>PMG/IV (2 lags)</b>		<b>PMG/IV (2 lags)</b>	<b>PMG/IV (2 lags)</b>
Shea partial R <sup>2</sup> : Local exp			<i>Local spending</i>	0.39 (0.50)	0.28 (0.56)
Shea partial R <sup>2</sup> : Local rev			<i>Local own rev.</i>	0.37 (0.57)	0.26 (0.57)
Shea partial R <sup>2</sup> : Investment	0.40 (0.50)	0.37 (0.50)		0.40 (0.50)	0.32 (0.51)
Anderson test	216.01 p-value 0.00	174.29 p-value 0.00		169.84 p-value 0.00	16.47 p-value 0.02
Weak identification test	30.23	23.62		15.20	1.31
Orthogonal to the error process					
Sargan test	1.251 p-value 0.87	5.864 p-value 0.21		7.829 p-value 0.25	7.216 p-value 0.30

Note: t-statistics in parentheses below parameters.

In sum, our set of excluded instruments is highly correlated with the included endogenous variables. Furthermore, Sargan tests, also reported in Table 4, do not reject the hypothesis that the third and fourth lagged values are valid instruments, i.e. orthogonal to the error process<sup>26</sup>.

Comparing results in tables 3 and 4 (columns 1 & 2) confirms our earlier FD findings. Subnational direct spending decreases growth whereas subnational own revenue enhances growth, with parameter estimates in table 4 larger than their table 3 equivalents, confirming our expectations that taken into account endogeneity leads to higher growth impacts. Thus, FD continues to be associated with faster growth when subnational government spending more closely matches what it collects. Using direct spending, the same conclusion is reached when disaggregating spending and revenues into local and state government components for the sub-sample of the nine “federalist” countries. Higher state direct spending significantly decreases growth, whereas higher state revenues significantly increase growth. Results are less clear for local spending and revenues in Table 4, though when openness and inflation are included (see below) a similar pattern to state spending/revenues is obtained.

<sup>26</sup> Using the second and third lags rejects the Sargan test.



Column 4 in table 4 - for disaggregated state and local government and *self-financed* spending – appears to suffer from weak instrument problems: both the identification test and the Shea partial  $R^2$ s for state self-financed spending and own revenues are low. When openness and inflation is included, this weak instrument problem wanes, but the Sargan test indicates that the instruments are not exogenous. Unfortunately, we cannot investigate this further using the fifth lag, because the time-series is insufficient and we have only nine countries in the sub-sample.

## 6. ROBUSTNESS CHECKS

### 6.1. Adding Control Variables

We noted earlier that several previous studies included inflation and openness variables among their control variables (though most recent papers fail to control for total government revenues). We report results for the equivalents of our tables 3 & 4 regressions but including these additional growth determinants, in appendix tables III.1 & III.2. We do not regard these regressions as satisfactory – the openness variable regularly takes the ‘wrong’ (negative) sign which is frequently significant. In addition, this variable appears to interact counter-intuitively with the investment ratio in several regressions. Nevertheless, of particular interest here is the evidence that inclusion of these additional regressors does not alter the parameter estimates or conclusions regarding the growth effects of spending or revenue decentralization. In both tables, these remain negative and positive respectively, typically significantly different from zero.

### 6.2. Using ‘Autonomous Revenue’ Definitions

The availability of the Stegarescu (2005) database allows us to examine Indicators 4 & 5 discussed above – based on definitions of ‘autonomous’ and central/local ‘shared’ revenues. These data have a more limited time-series dimension and, in contrast to our database above, are based on IMF, *Government Finance Statistics* (GFS) data, rather than OECD *National Accounts*, data. In addition, 5 countries are dropped from our previous sample: Greece and Mexico (no data), and Italy, New Zealand and Portugal (time-series insufficient to include in PMG estimations). This reduces the sample to 18 countries and 384 observations. Disaggregation into state and local governments is also not available. Nevertheless, the Stegarescu (2005) database is potentially helpful to check the robustness of our earlier results to narrower definitions of subnational revenues, capturing aspects of subnational ‘control’ (Indicator 4) and ‘shared revenues’ (indicator 5).



Table 5 reports results equivalent to those reported in table 4 for our larger sample. Using either indicators 4 or 5 again suggests that both direct and self-financed spending retard growth whereas autonomous revenues (either alone or with shared revenues) enhance growth. General government revenue is again robustly negatively associated with growth. It would appear then that changing the FD measures (direct vs. self-financed spending, own revenues vs. autonomous own revenues), changing the data source (OECD vs. IMF) and changing the sample (23 OECD vs. 18 OECD vs. 9 “federalist” countries) does not alter the conclusion: fiscal decentralization enhances growth when there is a close match between subnational spending and subnational revenues.

**Table 5**

**IV REGRESSIONS USING STEGARESCU VARIABLES & SAMPLE: 1975-2000**

Instruments: 3<sup>rd</sup> & 4<sup>th</sup> lagged values

Spending FD measures: Direct spending and Self-financed spending

Revenue FD measures: Autonomous own revenues; and Autonomous & shared own revenues

<b>Regression:</b>	<b>[1]</b>	<b>[2]</b>	<b>[3]</b>	<b>[4]</b>
<b>Method:</b>	<b>PMG/IV (1 lag)</b>	<b>PMG/IV (1 lag)</b>	<b>PMG/IV (1 lag)</b>	<b>PMG/IV (1 lag)</b>
General revenue ratio	-0.099 (-3.88)	-0.099 (-2.94)	-0.064 (-2.32)	-0.054 (-1.84)
State & local direct spending	-0.077 (-5.07)	-0.075 (-3.73)		
State & local self-financed spending			-0.078 (-3.34)	-0.039 (-1.54)
Autonomous own revenues	0.101 (5.87)		0.085 (6.14)	
Autonomous & shared own revenues		0.037 (2.92)		0.036 (3.76)
Investment	-0.014 (-0.58)	-0.058 (-2.04)	0.019 (0.86)	-0.000 (-0.02)
Employment growth	0.689 (28.26)	0.717 (25.74)	0.695 (28.47)	0.740 (28.48)
Openness	-0.021 (-4.58)	-0.017 (-3.01)	-0.034 (-7.30)	-0.040 (-7.34)
Inflation	-0.114 (-5.35)	-0.108 (-4.61)	-0.154 (-7.05)	-0.177 (-7.48)
Sample	N=18 Obs.= 359	N=18 Obs.= 359	N=18 Obs.= 359	N=18 Obs.= 359

(Sigue)

(Continuación)

Regression:	[1]	[2]	[3]	[4]
Method:	PMG/IV (1 lag)	PMG/IV (1 lag)	PMG/IV (1 lag)	PMG/IV (1 lag)
Correlated with the included endogenous variables: Shea partial R <sup>2</sup> (Partial R <sup>2</sup> in brackets)				
Shea partial R <sup>2</sup> : Revenue ratio	0.94 (0.95)	0.94 (0.95)	0.94 (0.95)	0.94 (0.95)
Shea partial R <sup>2</sup> : Direct exp	0.92 (0.97)	0.86 (0.98)		
Shea partial R <sup>2</sup> : Self-financed exp			0.93 (0.97)	0.72 (0.98)
Shea partial R <sup>2</sup> : Own tax	0.93 (0.98)		0.88 (0.95)	
Shea partial R <sup>2</sup> : Own & shared tax		0.86 (0.98)		0.68 (0.95)
Shea partial R <sup>2</sup> : Investment	0.71 (0.72)	0.71 (0.72)	0.69 (0.72)	0.66 (0.73)
Shea partial R <sup>2</sup> : Openness	0.96 (0.99)	0.97 (0.99)	0.96 (0.99)	0.97 (0.99)
Anderson test	397.80 p-value 0.00	397.49 p-value 0.00	370.28 p-value 0.00	304.92 p-value 0.00
Weak identification test	75.15	75.04	66.46	48.60
Orthogonal error process				
Sargan test	7.715 p-value 0.17	6.803 p-value 0.24	6.704 p-value 0.24	5.748 p-value 0.33

Note: t-statistics in parentheses below parameters.

### 6.3. Government Spending/Revenue Composition by Levels of Administration

Our evidence of negative expenditure decentralization effects on growth could be due to the fact that local governments spend less on growth-enhancing functions than central governments, rather than being more inefficient. Analogously, evidence of positive revenue decentralization effects on growth could also simply reflect the fact that local governments collect less from growth-distorting taxes than central governments. Hence our data may simply reflect the evidence of Kneller *et al.* (1999) and Bleaney *et al.* (2001) that 'distortionary' taxes retard growth while 'productive' expenditures enhance it, rather than the administration level at which these fiscal aggregates are spent or collected.

To investigate this we follow the methodology of Kneller *et al.* (1999) and Bleaney *et al.* (2001) to produce an aggregate ‘productive spending’ category - the sum of general public services, defence, public order and safety, environment protection, housing and community amenities, health and education. We also aggregate government revenue sources into ‘distortionary’ and ‘non-distortionary’ taxes and ‘other revenues’ (see Kneller *et al.*, 1999 for discussion), where the former is composed of current taxes on income, wealth and capital and social contributions and so-called ‘non-distortionary’ taxes are mainly indirect taxes such as VAT. These aggregations are only possible for European countries (from 1995), based on Eurostat data for the functional composition of government spending and the composition of government revenues by levels of administration.

These data reveal that the share of state and local government in the total productive spending in the EU-15 countries over 1995-2004 was 35% (the local share is particularly high for education, public order and safety), significantly above their share of total non-productive spending (28%). Using an ‘economic’ classification leads to a similar conclusion: local and state governments in the EU-15, accounted for a significantly higher share of government capital formation (68%) than for intermediate consumption (3%), compensation of employees (6%) or transfers (4%). We can therefore rule out the possibility that spending decentralization reduces growth because of a higher proportion of non-productive spending among local and state budgets.

For distortionary taxes, we find that local and state governments in the EU-15 collected 14% of all distortionary taxes during 1995-2004, and 28% of ‘other revenues’ (Kneller *et al.* show the latter also tend to be growth-retarding). By contrast, state and local governments only collected 11% of all non-distortionary taxes (growth-neutral according to Kneller *et al.*, 1999). The revenue decentralization growth effect observed earlier does not therefore appear to be due to a higher proportion of non-distortionary taxes among state and local revenues.

Finally, we have performed the Hausman test in our regressions in Table 3 to examine whether the assumption that the long-run effect of fiscal decentralisation across OECD countries is homogenous. Results of the tests (available upon request) do not reject the hypothesis that the long-run effects of subnational government spending and revenues are similar in OECD countries, with p-values higher than 0.50. This means that even when the categories decentralised differ by countries, the growth impact of fiscal decentralisation is homogenous across countries. So we have further evidence that our results are not driven by the composition of subnational spending and revenues but rather by the fact that they are run at a lower level of the government.



## 7. CONCLUSIONS

The empirical literature on the efficiency gains associated with fiscal decentralization has generally focused on the growth impact of spending or revenue decentralization separately. However, following Jin and Zou's (2005) evidence for China, we test simultaneously for the growth effects of both spending and revenue decentralization across OECD countries. From a theoretical perspective, Oates (1972) has argued that FD efficiency benefits become greater when there is a close match between revenue discretion and spending assignments at sub-national levels.

In this paper we find that economic growth in OECD countries has been adversely affected by decentralization of expenditures but encouraged by revenue decentralization. Since OECD countries are, in general, substantially more spending than revenue decentralized, this implies empirical support for the prediction that maximum FD efficiency gains require a closer match between spending and revenue decentralization in OECD countries. Our econometric results relate to *marginal* changes and, hence, do not indicate whether raising the share of decentralized revenues to the level of current expenditure shares (or reducing decentralized expenditure shares to match revenues) is necessarily growth-enhancing. However they do support the conclusion that reducing expenditure decentralization, and simultaneously reducing the fraction which is financed centrally would be growth-enhancing.

This evidence is robust to various definitions of decentralized spending and 'own revenues', and the use of PMG methods has allowed for the possibility that dynamic responses of growth to changes in spending and revenue shares may take several years. We have also allowed these short-run responses to vary across countries rather than impose short-run homogeneity as in the fixed effects models used by previous investigators. Our results emphasise the importance of testing simultaneously for expenditure and revenue decentralization to avoid conflating the distinct, and oppositely signed, impacts of the two aspects to FD.

Finally, testing for possible endogeneity bias of our fiscal decentralization (and some control) variables, suggests that lagged values can provide valid instruments and these confirm that our FD-growth estimates do not appear to be due to endogenous responses. For OECD countries, therefore, it would appear that, *ceteris paribus*, their growth rates have been hindered by a common tendency to finance a large fraction of their sub-national expenditures using centrally-raised tax revenues together with inter-government transfers, in preference to financing a higher fraction of subnational expenditures with revenues at the sub-national level. There may be a number of good or bad reasons why this is the case, which we have not addressed in this paper. However, the growth consequences of those choices seem clear.

## APPENDIX I

### DATA AVAILABILITY ON GOVERNMENT SPENDING AND REVENUE BY LEVELS OF ADMINISTRATION

Country	Own elaboration based on OECD National Accounts (1972-2005)		Stegarescu (2005) own calculations based on IMF GFS (1975-2000)
	Central and local spending & revenue	State spending & revenue	Autonomous & sharedown revenues
Australia	1972-2005	1972-2005	1975-1999
Austria	1972-2005	1972-2005	1975-1999
Belgium	1972-2005	1989-2005	1978-1998
Canada	1970-2005	1970-2005	1979-1997 & 1999-2001
Denmark	1972-2004	—	1975-2000
Finland	1972-2005	—	1975-1998
France	1972-2005	—	1978-1997
Germany*	1972-2005	1972-2005	1975-1996
Greece	1972-2005	—	—
Iceland	1972-2004	—	1975 & 1980-1998
Ireland	1972-2005	—	1975-1997
Italy	1973-2005	—	1985-1989 & 1995-1999
Luxembourg	1972-2005	—	1975-1988 & 1990-1997
Mexico	1972-2000	1972-2000	—
Netherlands	1970-2005	—	1975-1997
New Zealand	1972-2005	—	1978-1981 & 1992-2001
Norway	1972-2005	—	1980-1999
Portugal	1974-2005	—	1987-1998
Spain	1972-2005	1980-2005	1977-1997
Sweden	1972-2005	—	1978-1999
Switzerland	1972-2003	1972-2003	1975-1984 & 1990-2000
United Kingdom	1972-2005	—	1975-1998
United States	1972-2005	1972-2005	1980-2000

\* Data for Germany before 1991 refers to West Germany.



## APPENDIX II

### STATE AND LOCAL SHARES IN AGGREGATE GOVERNMENT SPENDING AND REVENUE ACROSS OECD COUNTRIES: 1970-2005

Country	State direct spending	Local direct spending	State self-financed spending	Local self-financed spending	State own revenue	Local own revenue
Australia	37.9	6.7	17.6	4.6	22.1	5.3
Austria	14.2	16.7	8.6	15.2	10.8	16.6
Belgium	9.4	13.1	2.8	7.3	2.8	7.6
Canada	40.6	19.8	38.8	12.2	39.8	12.4
Denmark		56.3		31.7		32.5
Finland		37.8		27.2		26.6
France		16.0		11.6		12.1
Germany*	23.3	18.3	23.4	12.3	23.3	11.8
Greece		4.8		4.8		3.6
Iceland		22.3		19.7		21.5
Ireland		32.5		15.9		14.4
Italy		24.9		13.5		11.3
Luxembourg		14.4		9.5		8.6
Mexico	15.5	3.0	15.2	3.0	16.8	3.8
Netherlands		34.8		11.7		11.6
New Zealand		11.6		11.4		10.8
Norway		35.0		29.0		24.9
Portugal		10.7		7.5		8.1
Spain	14.6	11.1	5.4	7.5	6.4	9.2
Sweden		44.2		35.3		33.6
Switzerland	32.3	25.3	27.8	22.9	26.3	21.7
United Kingdom		28.4		12.9		12.9
United States	20.7	26.2	28.3	18.5	25.5	16.1
<b>Simple Mean</b>	<b>9.1</b>	<b>22.3</b>	<b>7.3</b>	<b>15.0</b>	<b>7.6</b>	<b>14.7</b>

Source: OECD: National Accounts of OECD Countries - Vol. IV: General Government Accounts and IMF: Government Finance Statistics Yearbook.

\* Data for Germany before 1991 refers to West Germany.

**APPENDIX III**

**Table III.2**  
**PMG REGRESSIONS WITH OPENNESS & INFLATION: 1972-2005**

<b>Regression:</b>	<b>[A1]</b>	<b>[A2]</b>		<b>[A3]</b>	<b>[A4]</b>
<b>Decentralized Spending measure</b>	<b>Direct</b>	<b>Self-financed</b>		<b>Direct</b>	<b>Self-financed</b>
<b>Method:</b>	<b>PMG (2 lags)</b>	<b>PMG (2 lags)</b>		<b>PMG (1 lag)</b>	<b>PMG (1 lag)</b>
General revenue ratio	-0.099 (-6.21)	-0.064 (-3.79)		-0.159 (-4.34)	-0.155 (-5.16)
State & local spending	-0.064 (-4.19)	-0.029 (-1.13)	State spending	-0.057 (-2.05)	-0.235 (-4.59)
State & local own revenue	0.054 (2.65)	0.012 (0.40)	State own rev.	0.007 (0.14)	0.147 (2.80)
			Local spending	-0.119 (-2.23)	0.044 (0.63)
			Local own rev.	0.268 (2.36)	0.014 (0.16)
Investment Ratio	-0.007 (-0.29)	0.031 (1.06)		0.292 (4.73)	0.279 (4.96)
Employment Growth	0.771 (17.03)	0.744 (15.67)		0.532 (7.41)	0.437 (7.41)
Openness	-0.015 (-3.49)	-0.019 (-4.69)		-0.014 (-1.30)	-0.018 (-2.56)
Inflation	-0.059 (-3.66)	-0.043 (-2.70)		-0.018 (-0.72)	-0.064 (-2.70)
<i>Countries / Obs.</i>	23 / 726	23 / 726		9 / 283	9 / 283



**Table III.2**  
**IV REGRESSIONS WITH OPENNESS & INFLATION: 1972-2005**  
 Instruments: 3<sup>rd</sup> & 4<sup>th</sup> lagged values

<b>Regression:</b>	<b>[A5]</b>	<b>[A6]</b>		<b>[A7]</b>	<b>[A8]</b>
<b>Decentralized Spending measure</b>	<b>Direct</b>	<b>Self-financed</b>		<b>Direct</b>	<b>Self-financed</b>
<b>Method:</b>	<b>PMG/IV (2 lags)</b>	<b>PMG/IV (2 lags)</b>		<b>PMG/IV (2 lags)</b>	<b>PMG/IV (2 lags)</b>
General revenue ratio	-0.029 (-1.87)	0.014 (0.99)		-0.109 (-3.36)	-0.095 (-3.17)
State & local spending	-0.052 (-5.46)	-0.039 (-1.77)	State spending	-0.070 (-3.93)	0.037 (0.64)
State & local own revenue	0.123 (6.13)	0.103 (3.62)	State own rev.	0.138 (3.67)	0.027 (0.45)
			Local spending	-0.137 (-2.46)	-0.231 (-2.70)
			Local own rev.	0.204 (2.32)	0.222 (2.68)
Investment ratio	0.000 (0.01)	-0.014 (-0.49)		-0.094 (-1.47)	-0.138 (-1.94)
Employment Growth	0.782 (22.34)	0.745 (19.41)		0.604 (11.48)	0.545 (13.30)
Openness	-0.012 (-4.09)	-0.002 (-0.55)		0.003 (0.34)	-0.011 (-1.36)
Inflation	-0.068 (-4.91)	-0.056 (-4.96)		-0.056 (-2.65)	-0.050 (-2.60)
Sample	N=23 Obs.=645	N=23 Obs.=645		N=9 Obs.=254	N=9 Obs.=263
Correlated with the included endogenous variables: Shea partial R <sup>2</sup> (Partial R <sup>2</sup> in brackets)					
Shea partial R <sup>2</sup> : Revenue ratio	0.50 (0.69)	0.48 (0.69)		0.49 (0.69)	0.49 (0.70)
Shea partial R <sup>2</sup> : State & loc exp	0.44 (0.71)	0.28 (0.60)	State spending	0.32 (0.82)	0.15 (0.63)
Shea partial R <sup>2</sup> : State & loc rev	0.26 (0.60)	0.24 (0.58)	State own rev.	0.23 (0.65)	0.14 (0.61)

(Sigue)



(Continuación)

<b>Regression:</b>	<b>[A5]</b>	<b>[A6]</b>		<b>[A7]</b>	<b>[A8]</b>
<b>Decentralized Spending measure</b>	<b>Direct</b>	<b>Self-financed</b>		<b>Direct</b>	<b>Self-financed</b>
<b>Method:</b>	<b>PMG/IV (2 lags)</b>	<b>PMG/IV (2 lags)</b>		<b>PMG/IV (2 lags)</b>	<b>PMG/IV (2 lags)</b>
Shea partial R <sup>2</sup> : Local exp			Local spending	0.40 (0.51)	0.26 (0.56)
Shea partial R <sup>2</sup> : Local rev			Local own rev.	0.33 (0.57)	0.24 (0.57)
Shea partial R <sup>2</sup> : Investment	0.33 (0.49)	0.32 (0.49)		0.33 (0.50)	0.32 (0.50)
Shea partial R <sup>2</sup> : Openness	0.70 (0.91)	0.75 (0.91)		0.70 (0.91)	0.70 (0.91)
Anderson test	161.94 p-value 0.00	161.45 p-value 0.00		150.23 p-value 0.00	99.50 p-value 0.00
Weak identification test	17.31	17.25		11.30	7.20
Orthogonal to the error process					
Sargan test	1.13 p-value 0.95	4.79 p-value 0.44		8.35 p-value 0.30	11.17 p-value 0.05

Note t-statistics in parentheses below parameters.



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## SÍNTESIS

### PRINCIPALES IMPLICACIONES DE POLÍTICA ECONÓMICA

Este trabajo analiza si la descentralización fiscal conduce a los países a registrar mayores tasas de crecimiento económico. La evidencia empírica de trabajos anteriores no había llegado a un resultado concluyente. El estudio examina una muestra de 23 países de la OCDE en el periodo 1972-2005, usando métodos econométricos de datos de panel dinámicos que permiten que en cada país la descentralización fiscal tenga un efecto en el corto plazo diferente del de los demás y teniendo en cuenta la existencia de endogeneidad. Pues bien, los resultados muestran que la descentralización del gasto público disminuye el crecimiento económico mientras que la de los ingresos lo aumenta. En consecuencia, la implicación en materia de política económica sería la de reducir las transferencias de los gobiernos centrales a los subnacionales al mismo tiempo que se incrementa la co-responsabilidad de los regionales en la recaudación de los impuestos. Esta conclusión no varía cuando se emplean diferentes medidas de descentralización fiscal o cuando se tiene en consideración la elevada correlación entre los gastos e ingresos de las administraciones locales.

Una mayoría de países de la OCDE, entre ellos España, están más descentralizados en el gasto público que en los ingresos por lo que nuestra evidencia indicaría que la descentralización fiscal es eficiente cuando los presupuestos de los gobiernos subnacionales son financiados con los impuestos sobre los que ellos son responsables. Esta conclusión refuerza la hipótesis de Oates (1972) en el sentido de que la descentralización fiscal aumenta el crecimiento económico cuando los gastos públicos de las administraciones regionales y locales coinciden con sus ingresos. De este modo, se incrementa la rendición de cuentas de los gobiernos subnacionales antes sus ciudadanos, aumentando los incentivos para que se desarrollen políticas amistosas con el mercado, además de que se reducen los efectos distorsionantes de las transferencias entre las Administraciones. En suma nuestro trabajo señala que el porcentaje de ingresos que los gobiernos regionales y locales recaudan y sobre los que tienen responsabilidad deberían aumentar al mismo tiempo que disminuyen su participación en el total de los gastos, hasta que ambos converjan.





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