The Effects of Central Government Financing on Regional Government Expenditures in Spain

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Abstract

Currently, the 15 regional governments of Spain (we ignore two additional regional governments with special arrangements) are financed almost exclusively by grants from the central government. Using annual data on the budgets of the regional governments, we analyze the effects of this highly centralized system on the expenditures of the regional governments.

We conclude that the regional governments have very little fiscal autonomy and that, across regions, expenditures are redistributive, that is regional expenditures per capita are negatively correlated with regional income per capita. We argue that the fiscal system for regional governments in Spain could be both more efficient and more equitable if the central government were to finance a much smaller proportion of regional expenditures with equalizing grants, while enabling regional governments to utilize a major revenue source.

I. Introduction

Beginning in 1979, the central government of Spain began to devolve spending responsibilities to 15 newly formed or newly empowered regional governments of Spain (known as autonomous communities or ACs).[1] The process of devolving spending responsibility to the regional governments continues today. An unusual aspect of this process is that the amount of spending responsibility devolved varies across the ACs, resulting in five ACs having responsibility for the important areas of education or health, while the remaining 10 ACs have responsibility for minor spending categories only. In these 10 ACs, the central government provides education and health services.

A second unusual aspect of Spain's version of regional fiscal federalism is that the ACs have very limited authority to raise own-source revenues. Instead, the ACs rely almost exclusively on intergovernmental grants from the central government. Initially,

the level of the grants was set to cover the historical costs of the devolved services. However, the formula for determining the amount of grant monies allocated to each AC also evolved during the decade of the 1980s, resulting in an unclear, complicated relationship between the level of the grants and the costs of the devolved services.

In 1991, the fiscal relationship between the central government and the 15 ACs will be re-negotiated. As a prelude to those policy discussions, this paper provides an analysis of the regional government expenditures that have resulted under Spain's fiscal system from 1985 to 1988. The regional government expenditures are evaluated in the context of the traditional model of local (regional) government decision-making. We conclude with the implications of our empirical results for efficiency, equity, and autonomy, and for reform of the intergovernmental fiscal arrangements in Spain.

II. Spending Behavior of Aid-receiving Governments

In the past twenty years, the literature on the theory of intergovernmental grants has been put to extensive empirical testing.[2] One finding in the literature is the so-called "flypaper effect" whereby an extra dollar of intergovernmental aid results in a greater increase in recipient government expenditures than does an extra dollar of personal income.[3] This finding, which comes from estimating local or regional government demand functions, is often interpreted as evidence that the median voter model of government behavior is, if not incorrect, then certainly incomplete.[4]

While, as will become clear below, the Spanish context is an inappropriate one for testing the flypaper effect, the results of the empirical local government demand literature do provide a context for evaluating the Spanish situation. Subsumed in the debate over the flypaper effect is the equally well-documented finding that expenditures per capita are higher in jurisdictions with higher income per capita. In the settings of the empirical literature, typically U.S. cities, counties or states, this finding is unremarkable because it simply indicates that the demand for government-provided goods is normal or, more precisely, that jurisdictions with greater means (as measured by income per capita) choose higher levels of expenditures.

In the Spanish context, a key question is whether the regional governments actually *choose* anything of import. While (some) spending responsibility has been devolved, the means to finance the expenditures, and therefore the means to choose the *level* of expenditures has not been devolved. If through the grants program the central government is effectively choosing the expenditures for the ACs, then we would expect the relationship between expenditures per capita and income per capita to reflect the grants formula, rather than the behavior of the ACs. Thus, we might expect to find a different relationship between expenditures per capita and income per capita among Spanish ACs (with little fiscal autonomy) than we find among U.S. local or state governments (with significant fiscal autonomy).

Even though the ACs are severely restricted in their ability to raise revenues, they do have the authority to impose some minor taxes and user charges. Also, most grants from the central government are unconditional, leaving the choice of the mix of expenditures to the ACs. Thus, while limited, there is some scope in the current fiscal arrangement in Spain for ACs to behave differently from one another with respect to spending and revenues.

Because the level of AC expenditures differs very little from the level of grants to the ACs,[5] estimation of a traditional local government demand equation, in which expenditures per capita are regressed on a set of variables describing the tastes and resources of the jurisdiction, with grants per capita being a key variable, makes little sense in the Spanish context. Instead, we ask the more basic question, of whether the regional government expenditure outcomes are consistent with the view that the ACs are autonomous, decision-making entities. An alternative view is that the ACs are nothing more than administrative arms of the central government, that the important fiscal decisions are made by the central government, and that grants to regional governments, and therefore regional expenditures, are distributed in an equalizing fashion. We test these opposing views by estimating the relationship between expenditures per capita and income per capita. A positive relationship would be evidence that the ACs are somewhat autonomous in their spending behavior, while a negative relationship would be indicative of redistribution among the ACs through intergovernmental grants.

III. The Spanish System of Fiscal Federalism[6]

The 15 regional governments of Spain can be categorized into four types, differing in terms of their relationships with the central government and with the sub-regional provincial governments. First, as has already been mentioned, five of the ACs have spending responsibility for education -- Andalucía, Canarias, Cataluña, Galicia, and Valencia. Of these five, three -- Andalucía, Cataluña, and Valencia -- also have responsibility for health expenditures. In the remaining ten ACs, health and education services are provided by the central government. In 1988, these differing responsibilities resulted in average expenditures per capita of 46.93 thousand pesetas among the five high-responsibility ACs and 20.51 thousand pesetas among the ten low-responsibility ACs.

The ten low-responsibility ACs are further differentiated in that five of them -- Asturias, Cantabria, La Rioja, Madrid, and Murcia -- are uni-provincial, whereas the other five -- Aragón, Baleares, Castilla-La Mancha, Castilla-León, and Extremadura -- are multi-provincial. A province is a level of government lower than an autonomous community (analogous to a county in a U.S. state). The expectation is that over time the provinces will disappear in some regions (legally, if not culturally) and their fiscal responsibilities will be taken over by the ACs. This is effectively the case in the five uni-provincial, low-responsibility ACs. These ACs have budgetary responsibility for the services that are still provided at the provincial level in the multi-provincial,

low-responsibility ACs.[7] These important institutional differences, resulting in four distinct groups of ACs, are summarized in Table 1.

In terms of revenue sources, the ACs can impose user charges on some services, they can tax bingo and some other gambling proceeds, and they have been ceded certain

Table 1

Types of Autonomous Communities

Expenditures Per Capita, 1988

(thousands of 1980 pesetas)

	Uni-provincial	Multi-provincial
Responsible for Education		Canarias 39.90 Galicia 38.71
Responsible for Education and Health		Andalucía 54.83 Cataluña 54.69 Valencia 46.69
Not Responsible for Either Health or Education	Asturias 20.32 Cantabria 28.82 La Rioja 26.98 Madrid 19.47 Murcia 18.08	Aragón 18.84 Baleares* 11.49 Castilla-La mancha 24.65 Castilla-León 16.06 Extremadura 20.41

The autonomous communities of Navarra and País Vasco are not included in this table or in the analysis. The source for the expenditure data is the annual publication on the budgets of the autonomous communities from the central government Ministry of Finance.

* Baleares is officially uni-provincial, however, together with Canarias it has a unique level of government, the insular councils. The insular councils have fiscal responsibilities similar to the responsibilities of provinces in other ACs, and thus, for our purposes, it is appropriate to consider the spending responsibility of the Baleares regional government as comparable to a multi-provincial AC.

taxes, such as the wealth and inheritance taxes. These ceded taxes do not represent true own-source revenues because the expectation is that grants from the central government will be cut one peseta for every peseta of ceded tax revenue raised by the AC.

This concludes the description of the salient fiscal features of the regional governments as they were constituted in 1988. As mentioned above, the intergovernmental fiscal system in Spain changed frequently during the decade of the 1980s. As examples,

in 1986, a new formula for the central-to-AC grant program was adopted, and in 1988, Valencia was given responsibility for health care expenditures.

IV. The Data and the Results

The data consist of annual budget observations on the 15 ACs from 1985 through 1988 (a total of 60 observations). The source for the data is the annual publication on AC budgets, entitled *Estadística Presupuestaria de las Comunidades Autónomas* from 1985 to 1987 and *Presupuestos de las Comunidades Autónomas* in 1988, from the Spanish Ministry of Finance (Ministerio de Economía y Hacienda). These data are not ideal because they are budgeted not actual expenditures, but budget data are the only data available on a consistent basis. Using the budget data, we calculate four measures of expenditures: total expenditures (*TOTEXP*); total expenditures minus grant monies distributed under the *FCI*,[8] a redistributive grant from the central government aimed at regional economic development (*TOT − FCI*); total expenditures minus education and health expenditures, a measure of expenditure responsibility common to all ACs (*COMEXP*); and total expenditures minus *FCI* grant monies minus education and health expenditures (*COM − FCI*). These expenditure variables are the dependent variables in the estimated regressions.

As independent variables we include annual time dummies to capture changes in the fiscal institutions over time, dummies for the four types of ACs described in Table 1, and income per capita, the key economic variable of interest. All monetary values have been deflated to 1980 constant pesetas.

In Table 2, the results of estimating the expenditure regressions on the full data set (all 15 autonomous communities) are presented. In column 1, with total expenditures per capita as the dependent variable and controlling for level differences associated with the different levels of spending responsibility and for changes in the fiscal arrangement over time, we find a negative relationship between total expenditures per capita and income per capita. The elasticity of expenditures with respect to income is -0.30. This result contrasts sharply with the findings for regional governments in federal countries where fiscally empowered jurisdictions choose higher expenditures the higher their incomes. The negative coefficient on income indicates that the ACs are not autonomous, decision-making units of government. It also indicates that expenditures are redistributive in nature.

The dummy variables representing the different types of ACs perform as expected. *D*1 takes a value of one for the five ACs with responsibility for education. Expenditures per capita are nearly twice as high in these ACs relative to the five low-responsibility ACs with no provincial service responsibilities (compare the intercept of 17.82 to the coefficient on *D*1 of 14.99). *D*2 takes a value of one for the two ACs in the first three years and the three ACs in the fourth year with responsibility for health. Expenditures per capita are approximately 15 thousand pesetas higher in these three ACs than in the

five low-responsibility ACs without provincial service responsibilities. D3 takes a value of one for the five low-responsibility ACs with responsibility for provincial services.

Table 2

Regression Results

Real Expenditures Per Capita (1980 pesetas)

15 Autonomous Communities, 1985 to 1988

	(1) TOTEXP	(2) TOT − FCI	(3) COMEXP	(4) COM − FCI
CONSTANT	17.82	11.78	17.29	11.25
	(8.81)	(5.81)	(10.30)	(6.61)
PCY	-0.000016	-0.000008	-0.000016	-0.000007
	(3.80)	(1.84)	(4.54)	(2.15)
D1	14.99	15.25	1.98	2.22
	(11.88)	(12.06)	(2.24)	(2.48)
D2	15.14	15.10	--	--
	(9.99)	(9.95)		
D3	4.14	5.24	3.75	4.84
	(3.90)	(4.93)	(4.24)	(5.41)
D2T	1.63	1.53	1.70	1.60
	(1.34)	(1.25)	(1.67)	(1.55)
D3T	5.68	5.93	5.12	5.37
	(4.60)	(4.80)	(4.99)	(5.16)
D4T	9.70	9.75	8.10	8.15
	(7.73)	(7.76)	(7.78)	(7.72)
observations	60	60	60	60
R^2	0.93	0.93	0.64	0.65

TOTEXP is total expenditures per capita, in thousands of pesetas per capita.

TOT − FCI is TOTEXP minus FCI monies per capita, where FCI is a capital grant aimed at regional development.

COMEXP is TOTEXP minus expenditures per capita for health and education.

COM − FCI is COMEXP minus FCI monies per capita.

PCY is per capita income.

D1 is a dummy variable with a value of one for Cataluña, Galicia, Andalucía, Valencia, and Canarias, the five ACs with responsibility for education, and zero for all others.

D2 is a dummy variable with a value of one for Cataluña and Andalucía, the two ACs with responsibility for health, and zero for all others, except for Valencia in 1988, only, when it joined the other two with responsibility for health.

D3 is a dummy variable with a value of one for Asturias, Cantabria, La Rioja, Murcia, and Madrid, the five uni-provincial ACs with budgetary responsibility for provincial services, and zero for all others.

D2T, D3T, and D4T are time dummy variables representing 1986, 1987, and 1988, respectively.

Figures in parentheses are t-statistics.

These five ACs spend approximately four thousand pesetas per capita more than the other five low-responsibility ACs with no provincial service responsibilities.

The yearly time dummies also perform as expected. The dummy for 1986 (D2T) is not significant, while the dummies for 1987 and 1988 (D3T and D4T, respectively) are significant. In November of 1986, an important change occurred in the grant formula, which is reflected in the positive, significant coefficient on D3T. Other structural changes occurred in 1987 that increased AC expenditures in 1987 and 1988. The results for the time and AC-type dummy variables are robust to changes in the definition of the dependent variable and in the sample used.

In column 2, the FCI grant monies from the central government have been subtracted from total expenditures. The FCI is designed to be redistributive and to foster economic development in lesser developed regions. After subtracting the FCI, we still find per capita income to be negatively related to expenditures per capita (TOT − FCI), but the significance level of the coefficient has dropped and the elasticity is only -0.16 (compared to -0.30 for TOTEXP). Given the redistributive nature of the FCI and the importance of the FCI as a funding source, especially for the 10 low-responsibility ACs, this weaker relationship between expenditures and income is not surprising.

In column 3, the dependent variable is expenditures common to all ACs, that is, total expenditures minus expenditures for health and education. We find that the relationship between per capita income and this measure of expenditures per capita is highly significant and negative, with an elasticity of -0.45. Thus, common or residual expenditures display a more strongly negative relationship with income than do total expenditures (compare to the elasticity of -0.30 in column 1). Even though the expenditure measure in this regression omits health and education expenditures, we include the dummy for the five high-responsibility ACs to test for differential outcomes between the two groups.[9] The coefficient on the D1 variable is positive and significant indicating either that the five ACs with higher spending responsibility have a preferential outcome relative to the five low-responsibility multi-provincial ACs, or that the five high-responsibility ACs have the ability to divert education grant monies to other purposes (residual or common expenditures).

In column 4, the dependent variable is total expenditures minus health and education expenditures minus FCI grant monies. This measure of expenditures is of interest to see if residual expenditures remain redistributive once the highly redistributive FCI monies are removed. We find that the relationship between expenditures per capita, defined this way, and per capita income is statistically significant and negative. The elasticity is -0.22, approximately half the elasticity obtained in column 3 where the FCI is included.

In regressions not reported here, we allow the slope coefficient on per capita income to vary across types of ACs.[10] The Chow tests for whether the slope coefficient for the high-responsibility ACs differed from the slope coefficient for the low-responsibility ACs were inconclusive. Thus, in Table 3 we present the results of estimating the four regressions from Table 2 (corresponding to our four expenditure definitions for the dependent variable) for each of two samples -- the five high-responsibility ACs (20 observations) and the ten low-responsibility ACs (40 observations).

The dependent variable in the first two regressions (columns 1 and 2) is total expenditures per capita. We find the relationship between expenditures per capita and income per capita to be significant and negative for both samples (the statistical significance is stronger for the sample of low-responsibility ACs, column 2). The values for the coefficients on the income variable are similar to the value found in the corresponding regression using the full sample (Table 2, column 1). The higher degree of statistical significance on the income variable for the ten low-responsibility ACs can be explained by the fact that the *FCI* is a larger share of total expenditures for the ten than for the five high-responsibility ACs.

Columns 3 and 4 display the regression results obtained using total expenditures minus *FCI* monies as the dependent variable. We find that per capita income is still marginally significant and has a negative coefficient for the low-responsibility AC sample, but that per capita income is not a significant explanatory variable for the high-responsibility AC sample. These results confirm that the *FCI* is strongly redistributive, but once it is removed from the five high-responsibility ACs' expenditures, their remaining expenditures, which are largely health and education, are not redistributive. Because *FCI* is designed to be redistributive, the regression in column 3, where this redistributive element has been removed, is a test of whether the five high-responsibility ACs have any autonomy. Since we do not find a positive relationship between expenditures and income, we conclude that the five are not free to make important expenditure decisions.

The dependent variable in columns 5 and 6 is total expenditures minus health and education expenditures. We find that these residual or common expenditures vary inversely with per capita income. For the five high-responsibility ACs the *t*-statistic on the income variable is much higher using this definition of expenditures than when total expenditures is the dependent variable (compare columns 1 and 5). These results indicate that health and education expenditures are not redistributive and possibly act to reverse, to some extent, the redistributive nature of the residual expenditures and of the *FCI*.

Once education and health and the *FCI* are removed from total expenditures, the relationship between expenditures per capita and per capita income is negative, but only marginally significant (see columns 7 and 8). These results indicate that residual expenditures without the *FCI* are only weakly redistributive. A comparison of the results for the five high-responsibility ACs in columns 3 and 7 supports the contention that health and education expenditures are not redistributive.

In summary, the results of Tables 2 and 3 indicate that total expenditures are negatively correlated with income, that the *FCI* is strongly redistributive, that residual expenditures display a weak-to-moderate negative relationship to income, and that health and education expenditures may be uncorrelated with income. To explore this latter possibility further, we estimated regressions for the five high-responsibility ACs with education or education plus health expenditures as the dependent variable.[11] We

Table 3
Regression Results
Real Expenditures Per Capita (1980 pesetas)
15 Autonomous Communities, 1985 to 1988
Split Sample

	(1) TOTEXP	(2) TOTEXP	(3) TOT − FCI	(4) TOT − FCI
CONSTANT	31.41	18.50	24.64	12.79
	(9.28)	(8.33)	(7.99)	(5.56)
PCY	-0.000014	-0.000016	-0.000004	-0.000008
	(1.85)	(3.51)	(0.61)	(1.79)
D2	14.54	--	14.47	--
	(10.61)		(11.59)	
D3	--	4.14	--	5.25
		(4.01)		(4.91)
D2T	0.76	2.07	0.98	1.80
	(0.41)	(1.42)	(0.57)	(1.19)
D3T	7.24	4.88	7.67	5.03
	(3.79)	(3.33)	(4.41)	(3.30)
D4T	13.58	7.79	13.57	7.84
	(6.93)	(5.24)	(7.60)	(5.09)
observations	20	40	20	40
R^2	0.93	0.60	0.95	0.61

	(5) COMEXP	(6) COMEXP*	(7) COM − FCI	(8) COM − FCI
CONSTANT	19.65	17.26	12.88	11.55
	(7.98)	(8.23)	(5.70)	(5.30)
PCY	-0.000018	-0.000015	-0.000007	-0.000007
	(3.12)	(3.49)	(1.45)	(1.67)
D2	--	--	--	--
D3	--	3.74	--	4.85
		(3.83)		(4.78)
D2T	1.12	1.99	1.34	1.73
	(0.82)	(1.45)	(1.07)	(1.21)
D3T	6.06	4.67	6.49	4.81
	(4.36)	(3.37)	(5.09)	(3.34)
D4T	9.68	7.34	9.66	7.39
	(6.82)	(5.23)	(7.41)	(5.07)
observations	20	40	20	40
R^2	0.80	0.59	0.83	0.60

Variables are defined in Table 2.

Columns 1, 3, 5, and 7 display results for the five high-responsibility ACs.

Columns 2, 4, 6, and 8 display results for the ten low-responsibility ACs.

Figures in parentheses are *t*-statistics.

* Although health and education have not been transferred to the ten low-responsibility ACs, the budgets indicate small amounts of expenditures in these categories resulting in *TOTEXP* differing from *COMEXP* for the ten ACs.

found that per capita income was not a significant determinant of health or education expenditures.

V. Conclusions

This is a time of much uncertainty and anxiety for the 15 regional governments of Spain. The ACs are almost totally reliant on the central government for revenues to finance regional expenditures. The fiscal relationship between the central government and the ACs has changed frequently in the 1980s, and the changes and the current outcome are not easy to rationalize from a public finance economist's point of view. In 1991, the fiscal relationship between the central government and the 15 ACs will be renegotiated. We conclude by addressing two questions relevant to those future negotiations. (1) What do our empirical results imply about the workings of the current arrangement? (2) Can we interpret our results for lessons for fiscal reform in Spain?

Our analysis of expenditures that are common to all 15 ACs indicates that the five high-responsibility ACs are either preferentially treated or are able (feel compelled) to divert education grant monies for other purposes, such as the residual or common expenditures (Table 2, columns 3 and 4). Given what we have been able to uncover about the nature of the grant programs, the latter explanation is more likely to be the case. If so, the five high-responsibility ACs are likely feeling fiscally constrained and, under a different fiscal arrangement, would impose higher taxes or user charges to finance desired increases in expenditures.[12]

We find no evidence of expenditure outcomes that are positively correlated with income, indicating that expenditures are not being set by autonomous ACs. Thus, it is likely that higher income regions are unsatisfied with the current level of expenditures, finding them too low given their tastes and income. It is also unlikely that any Tiebout-type efficiency benefits are being realized, since the ACs are not empowered to compete with one another.[13]

While the expenditures financed by the *FCI* are highly redistributive and residual expenditures are weakly to moderately redistributive, we find that health and education expenditures, the two most important activities of the ACs, are not redistributive. Thus, the equity achievements of the current system are somewhat hollow.

To improve efficiency, it seems obvious that the central government should fund a much smaller share of the ACs' total expenditures and that the ACs should be empowered to raise their own revenue. A simple way to accomplish this would be to give the ACs access, in a no-strings-attached fashion, to one of the two major tax bases currently only used by the central government -- personal income and the value added tax. It would be vital to guarantee the ACs that future grant monies would not be tied to the amount of taxes raised from the newly acquired tax bases. Otherwise, as with the taxes that are currently ceded, the ACs would have little incentive to impose the new taxes.[14] If equity (redistribution) among regions continues to be a desirable goal, then

the much smaller (under this new fiscal system) central government grants should be redesigned because, except for the *FCI*, current grants do not achieve a great deal of redistribution.

If these changes were made to the Spanish fiscal system, what would we expect to see five or ten years in the future? We would expect to find regional expenditures positively related to income, and, if recent empirical results on the effect of grants on expenditures and the effect of the number of competing governments on expenditures translate into Spanish, we would expect total aggregate expenditures to fall, as efficiencies in government provision are realized.[15]

Notes

1. In this paper, we consider only the 15 autonomous communities with a common arrangement with the central government. We do not include the País Vasco and Navarra autonomous communities in our analysis because they have special arrangements with the central government.

2. For two excellent surveys of the literature see Gramlich (1977) and Inman (1979).

3. For discussions of this phenomenon see the articles in Mieszkowski and Oakland (1979), pp. 634-7 in Rubinfeld (1987), and pp. 359-62 in Fisher (1987).

4. See Hamilton (1983) for an interpretation of the empirical results that is consistent with the median voter model.

5. In 1988, the percentage of total expenditures financed by independent taxes and charges or loans in the four ACs with independent taxes or charges was 1.7 per cent in Cataluña, 9.6 per cent in Murcia, 4.8 per cent in Valencia, and 17.7 per cent in Canarias. In the other 11 ACs the only independent source of revenues was loans.

6. In this brief section we concentrate on aspects of Spain's fiscal system that are important to our analysis. For a detailed description of the system, see Solé-Vilanova (1989).

7. This distinction is unimportant among the five high-responsibility ACs because each is a multi-provincial AC.

8. *FCI* is the Spanish acronym for Interregional Compensation Fund.

9. We thank Xavier Calsamiglia for suggesting this hypothesis and for helping us interpret the results.

10. To do so we estimated regressions similar to those in Table 2, but where we included two interactive variables -- $D1$ times PCY and $D3$ times PCY. Our tests for whether the three groups of ACs had slope coefficients different from one another were inconclusive in that for some regressions they were significantly different at low levels of statistical significance, whereas in other regressions they were not statistically different.

11. The regressions are not reported here but are available from the authors upon request.

12. Currently, ACs have the authority to impose a regional surtax on the personal income tax, but none has chosen to do so. The explanation for this behavior almost certainly involves a fear on the part of the ACs that their central government grant monies would fall by the exact amount of the own-source revenues raised.

13. See Tiebout (1956).

14. See Note 12.

15. See Oates (1985) and Oates (1989).

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