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Legislature size and government spending in Italian regions: Forecasting the effects of a reform

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Abstract We analyze the effect of different legislature size on per capita regional expenditure in Italy. According to the theory, legislature size has an indefinite effect on government spending because logrolling and transaction costs may have canceling effects. We find a large and significantly positive effect of the number of legislators. We use these findings to forecast the effects of the increase in the number of legislators that is taking place in some regions: a 10% increase in legislature size commands on average a 12% increase in per capita regional expenditure.

Keywords Legislature size · Regional expenditure

JEL Codes: H72, H73

1 Introduction

The economic theory of government has modeled fiscal policy in democratic regimes as the result of competition between different pressure groups. One class of models developed in this line of research has investigated the relationship between government expenditure and legislature size (Weingast et al., 1981; McCormick & Tollison, 1981). According to this literature, legislatures may be designed to increase the gains from trade between representatives.

In this paper we build upon this body of research to explore further the positive content of the economic approach to politics. Specifically, we test the effect of the number of regional legislators on regional government expenditure in Italy from 1980 to 2000. Two parallel processes have occurred in the Italian administrative regions in the last few years. First, the regions have been invested with the power to write their own constitutions (Statutes), which

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policy makers have used to expand the legislature. Second, an important process of devolution of tax rates has occurred. As these processes of institutional and fiscal reforms are still in progress, this paper aims to highlight some indications on how important legislative structure is to explain spending behavior in Italian regions. This may be relevant in an evaluation of ongoing changes and to gain a picture of the new institutional setting of these jurisdictions.

The rest of the paper is organized as follows: Section 2 illustrates the reform that has taken place in the institutional structure of the Italian regions over the last few years; Section 3 reviews the literature. In Section 4 we develop a theoretical and empirical framework for the analysis. We then present the results in Section 5, and Section 6 offers some concluding remarks.

2 The theoretical and empirical background

The literature on the link between government expenditure and legislature size is based on two theoretical approaches. Though both approaches reflect a vision of public sector decision-making based on the role of the interest groups and of the logrolling, they present some differences. The following section attempts to underlines such differences in order to select the theoretical model that appears the most appropriate to interpret the Italian regional political and institutional framework.

An earlier strand of literature is based on the interest groups theory of government. This approach explores the decision making process as a brokerage process among legislators and lobbyists, in which the characteristics of the brokerage market (e.g., the size of legislatures) are an important feature of the analysis. Within this line of research, that begins with the seminal contribution by Stigler (1976), McCormick and Tollison (1981) – henceforth MTC – formalize a theory of the lobbying behavior of the interest groups in the pursuit of wealth transfers. The organized interest group must decide how much to spend on buying legislative influence and how to allocate this budget across the two houses of the legislature in order to maximize the organization's return from legislative influence. Larger legislature size (defined as the sum of the lower and upper houses) has an indefinite effect on government spending. On the one hand, an increase in the number of legislators results in a lower cost of lobbying because of additional competition between vote suppliers (legislators). Furthermore, when the total number of legislators increases, there are potential gains from increased specialization of labor within the committee apparatus. On the other hand, as long as the number of legislators increases, the transaction costs needed to find a viable majority of votes are also increased.

Within this theoretical framework, Crain (1979) highlights that the link between legislative output, which is used to capture the full scope of governmental activity, and the size of a legislature is not predictable *a priori*. A larger legislature could be associated either with higher production costs required for assembling legislative majorities or, alternatively, with lower decision making costs if the returns from increased labor specialization in the committee apparatus dominate the effect of larger sized groups on decision making costs. The results are ambiguous: the absolute size of a legislature should reduce output rates if the effect of larger-group sizes on the decision making costs dominate the returns from increased labor specialization, but should increase output rates if the reverse is true.

Given the emphasis these models assign to both the costs the interest groups face to monitor legislators and the costs for legislators of obtaining a winning coalition (or the potential gains from increased specialization of labor in the committee apparatus), it turns out that the relation between government spending and legislative size is essentially an empirical question whose

answer depends upon the relative strength of the different costs of generating collective decisions. Empirical tests of the theory outlined in MCT (1981) and in Crain (1979) yield mixed results on the effect of larger legislatures on government expenditure (or legislative output) (Crain, 1979; Shughart & Tollison, 1986).

Another way to explore the government expenditure-legislature size nexus is given by Weingast, Shepsle, and Johnsen (1981) – henceforth WSJ. They provide a formal model on the size of legislatures that focuses on the common pool problem and the related oversized distributive projects. Founding the logic of the model on the point of view of the policy maker (legislator), WSJ build upon the role of the interests of a specific geographic constituency and of the logrolling. In particular, the model stresses the division of democratic polities into electoral districts, noting that democratic representation everywhere is based on "a districting mechanism that divides the economy into n disjoint political units called districts" (p. 643), and defining "distributive policy [as] a political decision that concentrates benefits in a specific geographic constituency and finances expenditures through generalized taxation" (p. 644). Given these definitions, and assuming legislators follow logrolling, the main testable restriction of this model is that government spending increases as the number of legislative districts increases. To summarize, let $B_i(x)$ represent the present value of the economic benefits which flow from the spending x in district i to the constituents of legislator i, such that $B' > 0$, $B'' < 0$. Let $C(x)$ be the total economic costs of the project, under the assumption that $C' > 0$, $C'' \geq 0$. The efficient benchmark project size is given simply by: Max $E(x) = B(x) - C(x)$. Therefore, the efficient level of spending is such that $B_i'(x) = C_i'(x)$. If there are n districts and taxes are spread evenly across the districts, the legislator i bears $(1/n)$th of the cost of spending in district i. Therefore, legislator i pushes (x) up to the point in which $B_i'(x) = (1/n)C_i'(x)$. This implies that the optimal level of spending for each legislator is increasing in n. If legislators logroll and defer to each other regarding such expenditure, then the total spending is increasing in n. This implication, called "the Law of $1/n$", has stimulated empirical contributions (Gilligan & Matsusaka, 1995; Bradbury & Crain, 2001) that generally support the positive relationship between public expenditure and the number of legislators (districts) the WSJ model predicts.

The WSJ model and the related empirical literature that builds upon it, are based on the implicit hypothesis that one district may elect one representative. This is particularly appropriate to interpret the American electoral system, which is a plurality system. However, this is not the case of the Italian Regions. As outlined in the previous section, the electoral system of the Italian Regions switched from a pure proportional to a mix of majoritarian and proportional system; but each district elects a number of representatives. Furthermore, while the number of legislators increased, the number of the electoral districts remained the same. On the light of these considerations our test cannot take WSJ's model as the basis for the empirical analysis.

The theoretical hypothesis that will be tested in this paper is therefore those outlined in MCT; this implies that we do not have any *a priori* on the sign of the legislature size variable, as this sign indicates which kind of costs associated with the approval of expenditure projects will prevail.

3 A closer look at Italian regional government

Municipalities, Provinces, Metropolitan Areas, Regions and the State constitute the Italian Republic. The autonomy of these jurisdictions is an important feature of the Italian political and institutional system. The 1948 Constitution states that the regions, provinces and

municipalities are autonomous entities, with their own Statutes, powers and functions (art. 114). The regions of Friuli Venezia Giulia, Sardinia, Sicily, Trentino-Alto Adige and Valle d'Aosta enjoy particular forms of autonomy, according to their special Statutes adopted by constitutional law. Furthermore, the Trentino-Alto Adige region encompasses the Autonomous Provinces of Trento and Bolzano (art. 116).

The Constitution also establishes the regional branches of government, which are the Council, the Cabinet and its President. While the Council exercises the legislative power granted to the Region and all other functions conferred on it by the Constitution and by the laws, the Cabinet is the executive branch of regional government (art. 121 Const.). The rules that regulate the functions and the mechanism of election or appointment of such bodies of government have changed during the period we analyze. Until the reform passed in February 1995, the Council was elected under a proportional system and the legislators held office for a 5-year term. The number of legislators varied according to the regional population[1] and, in the regions with special Statutes, was established by the relevant Statute. The Council appointed the Cabinet, which was composed of the President and a certain number of members, usually called "*assessori*".

The changes occurred in the political and institutional scenario of the early '90s and the difficulties in reaching stable governments led to an important reform of the regional and local government electoral system. The reform has modified both the electoral system and the tenure length of regional legislators. In 1995 the mechanism by which the members of the regional Council are elected switched from a pure proportional representation system to a mixed one. Specifically, 80 percent of the legislators are elected on the basis of provincial lists and the remaining 20 percent by a majoritarian system on the basis of regional lists. A top-up number of seats for the winning coalition was also introduced, so that the absolute majority of the legislators will be held by the coalition linked to the regional list that has obtained the relative majority of the votes.[2] Furthermore, the law reduces the tenure length of the Council from five to two years if the relationship of confidence between the Council and the Cabinet breaks down during the first two years. The law was first applied in the 1995 regional elections.

The process to reform the electoral mechanism ended in 1999 when the art. 122 was modified by a constitutional law. The renewed version of this article states that the President of the regional Cabinet is elected by universal and direct suffrage, unless the regional Statute establishes otherwise. The elected President appoints and dismisses the members of the regional Cabinet. The first direct election of the President took place in the 2000 regional elections. The constitutional law of 1999 also gave regions the opportunity to write their own statutes (art. 123). The statute determines the form of government and the fundamental principles of the organization and functioning of the Region, in accordance with the Constitution. In other words, the regions can choose their own form of government and electoral rules, within some boundaries. In particular, they can set the number of legislators. Table 1 reports the old and new number of regional legislators according to draft regional constitutions.[3] Twelve out of

[1] The empirical evidence this line of research offers, essentially focuses on the American electoral system, which is a plurality system where in each district is elected a single member of legislature. In contrast, under proportional system a certain number of representative may be elected in each district.

[2] Bradbury and Crain (2001) also find that the effect is far greater in unicameral legislatures than in bicameral legislatures; furthermore, while the size of the lower chamber is positively related to government expenditure, the sign of the upper chamber is negative.

[3] On the basis of the law passed in 1968 (n. 108) the number of regional legislators was 30 in regions with less than one million inhabitants; 40 for regions with more than one million inhabitants; 50 for regions with more

Table 1 Old and new number of legislators

Regions	Old legislators	New legislators
Abruzzo	43	50
Apulia	60	70
Basilicata	30	40
Calabria	43	54
Campania	60	80
Emilia Romagna	50	65
Friuli Venezia Giulia	60	60
Lazio	60	71
Liguria	40	51
Lombardy	80	80
Marche	40	42
Molise	30	30
Piedmont	60	60
Sardinia	80	80
Sicily	90	90
Tuscany	50	65
Trentino Alto Adige	70	70
Umbria	30	37
Valle d'Aosta	35	35
Veneto	60	60

Source: www.parlamentiregionali.it

twenty regions plan to increase the number of legislators, in many regions this change has come into effect during the regional elections in April 2005.[4]

During the period we analyze, the fifteen Regions characterized by the so-called ordinary Statute played an active role on the spending side. Yet, this role were not exclusive, as the regions exercised their legislative power in compliance with the limits set by the national legislature. According to the articles 117 and 119 of the Constitution, the expenditure decisions were related to the administration, social services, health care, education and culture, housing, roads and transports, infrastructures and economic development. In particular, spending on health care was quantitatively the most important item of regional budgets.[5] On the tax side, up to the early 90s regional governments did not have neither autonomy nor power to set tax rate, regional revenues essentially deriving from grants of central governments. A very limited autonomy was introduced in 1992, whereas in 1997 the power to set both the rate of the regional business tax (IRAP) and a top up rate of the national income tax was established. This process of decentralization was completed in 2001 when a reform of the Section of the

than three million inhabitants; 60 for regions with more than four million inhabitants; and, finally 80 for regions with more than six million inhabitants. This relationship between regional population and legislature size makes possible endogeneity between regional government spending and legislature size irrelevant (according to the argument that says that higher government spending needs more legislators because of increased specialization).

[4] The number of legislators can be increased if votes do not provide such a majority when translated into seats. This is the case of Abruzzo and Calabria in our sample.

[5] In 1998 expenditures on health care, administration and education represented respectively 69.81, 6.43 and 1.65% of total expenditures of ordinary statute regions (Istat, 2000).

Table 2 Summary statistics

	Mean	S.D.	Min	Max
EXP	7,298.653	6,439.811	460.296	33,685.743
GDP	15,300.596	5,365.258	7,247.231	41,199.765
LEG	50.413	17.593	30.000	90.000
OR	449.124	270.72	59.245	536.357
REF	0.286	0.452	0.000	1.000
TRANS	1,110.176	630.591	371.765	1,605.886

Constitution devoted to the organization of the sub-national level of governments (Title V of the Constitution) was enacted and the degree of financial autonomy of the Italian Regions and the attribution of their legislative competences expanded.[6]

4 Variables and data

We use regional data spanning from 1980 to 2000 considering two dataset. The first (Large) includes all 20 regions plus the provinces of Bolzano and Trento who belong to the Trentino-Alto Adige (TAA) region. Unlike all other Italian regions, for historical and ethnic reasons, TAA has very limited power, which is devolved to the two provinces. Italian statistics put the two provinces together with the other regions. For this reason TAA and its provinces may represent outliers, therefore we also consider a smaller dataset (Small) that excludes them and the other special statute regions. The benchmark specification is:

$$EXP_{\mathrm{it}} = \alpha_0 + \alpha_1 LEG_{\mathrm{it}} + \alpha_2 GDP_{\mathrm{it}} + \alpha_3 TRANS_{\mathrm{it}} + \alpha_4 OR_{\mathrm{it}} + \alpha_5 REF_{\mathrm{it}} + \varepsilon_{\mathrm{it}}, \qquad (1)$$

where *EXP* is regional expenditure, *LEG* is the number of legislators, *GDP* is regional gross domestic product, *TRANS* represents transfers from the national government, *OR* indicates the revenue raised by the region itself, *REF* is a dummy variable meant to capture the effect of the reform of 1995 (therefore it is equal to zero before this year and equal to one afterwards), and $\varepsilon_{\mathrm{it}}$ is a stochastic error.[7] In the light of the previous discussion, we do not have any *a priori* on the sign of *LEG*. We also cannot predict the sign of *REF* because the transition from a parliamentarian to a presidential system would reduce government spending, but at the same time a process of federalism has started inducing regional expenditure to substitute (at least) for national government expenditure. All data are in real per capita terms (1995 base = 100), and are expressed in euros. Data on expenditure, transfers, and own revenue are taken from Istat (various years). *GDP* and population are taken from Crenos (2004). Table 2 reports the summary statistics for the above variables.[8]

[6] In 1991 only 2.5% of regional revenues derived from regional taxes and share of national taxes, while 97% was from grants from central governments. In 1994 revenues from regional taxes and share of national taxes increased, representing 6.3% of the total, whereas grants from central governments decreased to 46% (Istat, 2000).

[7] To capture healthcare spending, the major outlay in Italian regions, we experimented the variable *POP65* (the proportion of citizens aged over 65) but it turned out to be insignificant in all cases, and it has been dropped from estimations. This is possibly due to the role of the National Healthcare Fund that administered the transfers from the central government to the regions until 2000.

[8] A correlation matrix is available upon request from the authors.

Possible endogeneity between expenditure and transfers might affect OLS estimates. Transfers affect expenditure, but the reverse might also be true: transfers are set by the central government taking into account regional expenditure in order to avoid a drift in deficit. In this case OLS estimates may be biased, and the Instrumental Variables method provides better estimates. As instruments we used a number of lags of transfers equal to the number of variables included in each regression. In the next section we presents results obtained with both methods.

5 Results

In Table 3 we have estimated Equation (1) excluding regional fixed effects. We did so because of the very small variability over time of the size of the legislature in each region. The estimates concerning *LEG* are positive and significant at the 1% level. Transfers and institutional reform are also significantly positive. In column (2) we have estimated the same model by adding regional fixed effects. The picture changes considerably: *LEG* is now insignificant, whilst *GDP* becomes significant at the highest level. Results for *TRANS*, *OR* and *REF* do not change. The inclusion of fixed effects seems appropriate, since the statistics concerning their joint significance (Wald dummy – which is distributed as a χ^2 with a number of degrees of freedom equal to the number of dummy variables) highly rejects the null. Moreover, the adj-R^2 improves, raising from 41 to 85% of the variability in regional expenditure. Taking stock of this result we keep regional dummies in column (3) where we remove *OR* because of possible correlation with *TRANS*. Results are not altered. In column (4) transfers and *GDP* are removed, but *OR* is still insignificant. Moving to the small sample, we again estimate Equation (1) with and without fixed effects, in column (5) and (6), respectively. The Wald dummy statistics again rejects the null, and the inclusion of regional dummies increases the adj-R^2 from 62 to 84%. *LEG* is highly significant in both cases. This is probably caused by the higher homogeneity in terms of institutional structure of the smaller sample, which excludes special status regions. For the other variables that are no serious differences with the exceptions of *REF*, which tend to be insignificant, and *OR*, which is significantly positive in columns (5) and (8) of the small sample. *TRANS* is probably a more important determinant of regional government expenditure than *OR* because monetary transfers play an important role in the policy of cohesion between North and South; regional taxes have not played a major role in regional public finances until the last decade. The joint significance of the variables (Wald joint test – which is distributed as a χ^2 with a number of degrees of freedom equal to the number of variables) is always very high.

Estimates via the IV method show some differences with the OLS results (Table 4). The coefficients found for *LEG* are always positive and significant, both in the large and in the small sample. Other results are quite similar to previous ones, with the exception of *TRANS*, which is sometimes insignificant. The variable *REF* is always positive and significant, showing that the increasing effect in expenditure caused by federalism outweighs the reduction implied by presidentialism. Furthermore, the new system was also weak. The regional president was indicated and not directly elected, and after 18 months from elections could have been removed and the coalition supporting the new president could have been different from the previous one (this actually happened in two regions, Campania and Calabria). This made the chief executive not very powerful with respect to the coalition supporting him. Second, in the transition from the first to the second republic the number of parties has increased, making more difficult to reach decisions and improving the opportunity for lobbies to be represented.

Table 3 OLS estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LEG	0.226***	0.213	0.185	0.235	0.374***	0.811***	0.795***	0.849***
	(0.053)	(0.317)	(0.305)	(0.336)	(0.064)	(0.181)	(0.176)	(0.238)
GDP	0.099	1.038***	1.016***		−0.198	0.898***	1.116***	
	(0.271)	(0.267)	(0.263)		(0.349)	(0.249)	(0.307)	
OR	0.021	0.006		0.018	0.528***	0.660		0.434***
	(0.065)	(0.045)		(0.056)	(0.191)	(0.587)		(0.139)
TRANS	0.302**	0.287***	0.281***		0.290***	0.236***	0.288***	
	(0.126)	(0.053)	(0.052)		(0.077)	(0.057)	(0.059)	
REF	0.644***	0.744*	0.648*	0.283***	0.404**	0.505	0.876	1.233*
	(0.157)	(0.353)	(0.324)	(0.081)	(0.168)	(0.980)	(0.799)	(0.710)
Sample	Large	Large	Large	Large	Small	Small	Small	Small
Adj-R^2	0.412	0.847	0.845	0.766	0.625	0.843	0.835	0.7656
Obs.	370	370	383	372	289	289	289	289
Wald joint	31.99***	50.40***	49.71***	16.32***	40.52***	85.95***	89.95***	30.71***
Wald dummy		120.24***	259.63***	148.5***		118.24***	63.48***	163.17***

Numbers in parentheses are robust standard errors. Instruments are a number of lags of transfers equal to the number of variables. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively

Table 4 IV estimates

	(1)	(2)	(3)	(4)
LEG	0.213***	0.229***	0.455***	0.411***
	(0.018)	(0.037)	(0.038)	(0.049)
GDP	−0.144	0.288***	0.835***	0.633***
	(0.153)	(0.011)	(0.043)	(0.023)
OR	−0.791		0.667***	
	(1.007)		(0.213)	
TRANS	−1.061	1.240	1.372***	2.099***
	(1.061)	(1.314)	(0.249)	(0.578)
REF	0.358**	0.245***	0.591***	0.393***
	(0.156)	0 (0.086)	(0.132)	(0.107)
Sample	Large	Large	Small	Small
Obs.	239	269	202	218
Wald joint	67.74***	56.88***	43.19***	72.13***
Wald dummy	33.13***	50.63***	78.97***	56.19***
χ^2-over id.	5.78	5.11	8.33	6.34

Numbers in parentheses are robust standard errors. Instruments are a number of lags of transfers equal to the number of variables. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively

The χ^2-over id. test maintains that the used instruments are exogenous, only in clumn (3) the statistics is borderline insignificant. The joint significance of the variables (Wald joint) and of the regional effects (Wald joint) are always very high.

6 Conclusions

In this paper we have analyzed the effect of different legislature sizes on regional government spending via OLS and IV estimation, to take into account possible endogeneity between

expenditure and transfers. The results are different across different samples, but they have a straightforward interpretation. An increase in the number of legislators induces an increase in regional expenditure in the sample of ordinary statute regions, pointing towards strong differences with respect to special statute regions. Regional expenditure also appears to be linked to the size of national transfers and generally to the regional GDP. Revenue raised by regions does not have a serious explanatory power. We also find an increase in spending related with institutional reform in 1995.

Our estimates allow us to forecast a significant increase in government spending per capita in the regions that are enlarging their legislatures using the window of opportunity created by new Statutes. If we express our model in logs, we find that a 10% increase in legislature size commands on average a 12% increase in per capita regional expenditure. This effect is not in line with current attempts to curb government spending in Italy, and potentially places the efforts of regional policies in contrast with national goals.[9] We believe that this kind of Public Choice analysis should be considered before designing and implementing institutional reforms.

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References

Bradbury, J.C., & Crain, W.M. (2001). Legislative organization and government spending: cross-country evidence. *Journal of Public Economics*, *82*, 309–325.

Crain, W.M. (1979). Cost and output in the legislative firm. *Journal of Legal Studies*, *8*, 607–622.

Crenos. (2004). Regio-It 1970–2002. *Data-base on the Italian regions*. University of Cagliari.

Gillian, T.W., & Matsusaka, J.G. (1995). Deviations from constituents interests: the role of legislative structure and political parties in the States. *Economic Inquiry*, *33*, 383–401.

Istat. (various years). *Statistiche dei bilanci delle amministrazioni regionali, provinciali e comunali*. Roma: Istat.

Istat. (2000). *I bilanci consuntivi delle regioni e delle province autonome*, Roma: Istat.

McCormick, R.E., & Tollison, R.D. (1981). *Politicians, legislation, and the economy*. Boston: Martinus Nijhoff.

Shughart, W.F., & Tollison, R.D. (1986). The political economy of legislation and the growth of government. *Research in Law and Economics*, *9*, 111–127.

Stigler, G.J. (1979). The size of legislatures. *Journal of Legal Studies*, *5*, 17–34.

Weingast, B.R., Shepsle, K.A., & Johansen, C. (1981). The political economy of benefits and costs: a neoclassical approach to distributive politics. *Journal of Political Economy*, *89*, 642–664.

[9] After writing the first version of this paper there was a heated political discussion about the proliferation in most of the regions (typically those who experienced an increase in the number of legislators) of committees, with relevant top-up salaries for their chairs. We were not surprised by this effect.