LEGISLATURE AND CONSTITUENCY SIZE IN ITALIAN REGIONS: FORECASTING THE EFFECTS OF A REFORM

NADIA FIORINO AND ROBERTO RICCIUTI

Legislature and constituency size in Italian regions: forecasting the effects of a reform*

Nadia Fiorino
University of L'Aquila and CREI

Roberto Ricciuti[§]
University of Florence and CREI

ABSTRACT

We analyze the effect of different legislature and constituency 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. Smaller constituency size is predicted to decrease government spending, because of homogeneity of interests and low monitoring costs. We find a large and significantly positive effect of the number of legislators and a negative effect for constituency size. We use these findings to forecast the effects of the increase in the number of legislators that is taking place in some regions.

Keywords: Legislature size, constituency size, regional expenditure.

JEL Codes: H72, H73

[§] Corresponding author: Dipartimento di Studi sullo Stato, Università degli Studi di Firenze, Via delle Pandette, 21 - 50127 Firenze, Email: roberto.ricciuti@unifi.it

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 state government expenditure and legislature size. According to these models, two features of the political-institutional system are especially relevant in explaining excessive government spending: the number of legislative districts (Weingast et al., 1981) and the number of seats in a state's legislature (Gilligan and Matsusaka, 1995). This is consistent with the theoretical hypothesis that logrolling leads representatives to spend more than their constituents would like, as common pool problems arise from the tax base and the benefits of a given spending project are internalized by an individual constituent group, while the costs are spread over the entire population. Yet, despite its widespread acceptance as a conceptual proposition, this hypothesis has received mixed support from the existing evidence. In addition, most of the empirical contributions focus on the American institutional setting.

In this paper we build upon the literature outlined above and examine regional government expenditure in Italy from 1980 to 2000. Specifically, we attempt to test the effect of the number of regional legislators and constituency size on regional spending. 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 policy makers tend to use to expand the legislature. Second, an important process of devolution of tax rates has occurred. As these processes of regional institutional and fiscal reform 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 reviews the literature; Section 3 illustrates the reform that has taken place in the institutional structure of the Italian regions over the last few years; in Section 4 we describe the data and specify the variables used for the empirical analysis. We then present the results in Section 5, and Section 6 offers some concluding remarks.

2. Literature review

Since the seminal contribution of Stigler (1976), the size of legislature has been seen to play a pivotal role in explaining the production of legislation and the general tendency of government to grow over time. Crain (1979) finds that the linkage between legislative output and the size of a legislature is not predictable *a priori*. This is because 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 contrasting: lower price of votes leads to an increase in government size and *vice versa* higher decision making costs reduce the government size.

McCormick and Tollison (1981) formalize the problem of an interest group deciding how much to spend on buying legislative influence, and its agent (lobby) deciding how to allocate this budget (E) across the two houses of the legislature in order to maximize the organization's return from legislative influence. The organization knows that the votes (V) it will receive in the two houses are a function of its

2

expenditure in each house (E^h and E^s) and the size of each house (h and s), therefore: $V^h = V^h(E^h, h)$ and $V^s = V^s(E^s, s)$. The problem faced by the interest group is to maximize the net returns from legislative influence $Y_n = Y - E$ subject to $E = E^h + E^s$, $Y = Y(V^h, V^s, L, W, P)$, and the previous vote functions, where W is the wealth of the community, P is the population, and L is legislative size. 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. 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. In the end, the problem is an empirical one.

Weingast *et al.* (1981) provide a formal model on the size of legislatures, in which they consider each chamber in itself, rather than the overall number of legislators. The main testable restriction of this model is that government spending increases as the number of legislative districts increases. To summarize, let $b_i(x)$ be the benefit to the constituents of legislator i of spending x dollars in district i, and let $c(x)$ be the cost of spending. The efficient level of spending is such that $b'_i(x) = c'(x)$. 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 $b'_i(x) = (1/n)c'(x)$. 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 is called "the Law of $1/n$".

Shughart and Tollison (1986) find a positive relationship between real per capita government spending and the number of public and private bills enacted into law. The results hold in the long-run, using data from US states for legislature and laws ranging from 1889 to 1980. Gilligan and Matsusaka (1995), after controlling for constituent interests, show the number of seats in the upper house to be positively associated with per capita state and local direct general expenditure. Furthermore, a large legislature leads to higher spending in both capital and non-capital programs, welfare, education and highway expenditures. Possibly, these results do not extend to lower chamber because bicameralism is not taken into account as an explanatory variable.

A different measure of legislature size has been explored by the subsequent literature. Thornton and Ulrich (1999) argue that constituency size, defined as the number of constituents per legislator, is the relevant size variable in the determination of government spending, rather than the absolute size of the legislature. They maintain that a larger ratio reduces monitoring of representatives by voters, enabling the representatives to be less accountable and to deviate from their preferences. In addition, a larger constituency encompasses more interest groups calling for representation and transfers. They show that larger constituency size produces a higher level of state government spending per capita both in the upper and lower chambers in US States.

Finally, Bradbury and Crain (2001) analyze a panel of 24 bicameral countries and 14 unicameral countries for the period 1971-1989. The results support the positive relationship between legislature size and spending across countries.[1]

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 law, the Cabinet is the executive branch of regional government. The rules that regulate the functions and the mechanism of election or appointment of such bodies of government have changed during our sample period. 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[2] 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 (art. 1, par. 2) and the remaining 20 percent by a majoritarian system on the basis of regional lists (art. 1, par. 3). A *premium for the majority* in two steps 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.[3] 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.

Art. 122 (par. 1) was modified by a constitutional law passed in 1999. It 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 gives the 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. Twelve out of 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. Data in Table 1 shows

the variety in the number of legislators in Italian regions (from 30 in Molise and Umbria to 90 in Sicily), and highlights the large variation in the ratio of inhabitants to legislators (which ranges from as few as 3,445 in Valle d'Aosta to as many as 114,096 in Lombardy). The current changes do not modify the range of legislators or inhabitants-to-legislators ratio but vary their mean (from 53.55 to 59.50 and from 49,632 to 43,778, respectively).

[Table 1 about here]

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 specifications are:

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

$$EXP_{it} = \beta_0 + \beta_1 CS_{it} + \beta_2 GDP_{it} + \beta_3 TRANS_{it} + \beta_4 OR_{it} + \alpha_5 REF_{it} + \varepsilon_{it}, \qquad (2)$$

where *EXP* is regional expenditure, *LEG* is the number of legislators, *CS* is constituency size defined as the population-to-legislators ratio, using population as a proxy for voters, *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 ε_{it} is a stochastic error.[4] In the light of the previous discussion, we expect both *LEG* and *CS* to be positive. All data are in real per capita terms (1995 base = 100), and are expressed in euros. We use panel data without country fixed effects because of the limited time variation of legislature and constituency size variables. 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.[5]

[Table 2 about here]

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.[6] In this case OLS estimates may be biased, and the Instrumental Variables method provides better estimates. As instruments we used three lags of regional expenditure. In the next section we presents results obtained with both methods.

5. Results

We first analyze the effect of different legislature sizes. Columns (1) - (3) report OLS estimates for the Large sample, whereas columns (4) - (6) concern the small sample. IV estimates for the Large sample are given in columns (7) and (8), and for the small sample in columns (9) and (10). The same order applies for constituency size.

In Table 3 the estimates concerning *LEG* are positive and significant at the 1% level. Moreover, its point estimates are slightly larger in the small sample than in the large sample. *GDP* is insignificant, whilst *TRANS* is significantly positive. *OR* is significantly positive only in the small sample. *TRANS* is probably a more important determinant of regional government expenditure than *OR* because while 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. To avoid possible correlation between *GDP* on the one hand, and transfers and revenue on the other hand (negative and positive, respectively) we exclude either *OR* or *GDP* from some estimates. These results do not modify previous ones but slightly reduce the explicative power of the estimated equations. Reducing the sample improves the results (notably *OR* and the significance level of *TRANS*), but it does not change the qualitative results we are mainly interested in. A notable result concerns the variable *REF*. Because the reform established a system in which the regional government is stronger, we would expect a negative effect on spending. In contrast, the estimated coefficient is significantly positive. We believe that a number of reasons may explain this result. First, 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, the number of parties has increased, making reaching decisions more difficult and improving the opportunity for lobbies to be represented.

The estimated equations explain about 40% of the variability of regional expenditure in the large sample and about 60% in the small sample, indicating that getting rid of possible outliers improves upon the explicative power of the model. The joint significance of the variables (Wald test – which is distributed as a χ^2 with a number of degrees of freedom equal to the number of variables with the exception of the constant) is always very high.

Estimates via the IV method do not change the basic message of OLS results. The coefficients found for *LEG* are larger than before, which is probably a sign that previous results were affected by some noise that the instruments are able to remove. The point estimates of *OR* are much smaller than before and than the coefficients of *TRANS*, which seems closer to the financing structure of Italian regions. The χ^2-over id. test maintains that the used instruments are appropriate at the 1% level.

[Table 3 about here]

Table 4 reports results for constituency size. *CS* is significantly positive as expected, at the highest significance level. With respect to *LEG* we observe a reduction in the absolute value of the coefficient. The other variables basically confirm the above results. *REF* is again significantly positive. The estimated equations explain about 60% of the variability of regional expenditure, with minor differences between the large and

the small samples. According to the Wald test, the variables are again jointly different from zero at the 1% significance level.

[Table 4 about here]

IV results are consistent with previous estimates. *CS* point estimates are always significant at the 1% level, and are slightly higher than OLS ones. Yet, they are smaller than estimates for legislature size. *TRANS* is very high in the large sample, while in the small sample its estimates are smaller and similar to those obtained with OLS. Other variables basically perform as in the whole sample. The joint significance of the variables involved in the regressions and the statistics regarding instruments are significant at the highest level.

6. Conclusions

In this paper we have analyzed the effect of different legislature and constituency sizes on regional government spending via OLS and IV estimation, to take into account possible endogeneity between expenditure on one side and transfers and own revenue on the other side. An increase in the number of legislators induces an increase in regional expenditure in both models. Regional expenditure also appears to be linked to the size of national transfers and to revenue raised by the regional authority (in the latter only in IV estimates), but not to the regional GDP. 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. 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.[7] We believe that this kind of Public Choice analysis should be considered before designing and implementing institutional reforms.

Endnotes

[1] 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.

[2] On the basis of the law passed in 1968 (n. 108) the number of regional legislators is 80 for regions with more than six million inhabitants; 60 for regions with more than four million inhabitants; 50 for regions with more than three million inhabitants; 40 for regions with more than one million inhabitants and, finally, 30 in all other regions. 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).

[3] To allow for this premium, 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.

[4] To capture healthcare spending, the major outlay in Italian regions, we experimented the variable *PROP65* (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.

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

[6] One needs to take into account that Italian regions have basically been unaccountable for their expenditure, as discussed above.

[7] 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.

References

Bradbury, J.C., and 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., and 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.

McCormick, R.E., and Tollison, R.D. (1981). Politicians, Legislation, and the Economy. Boston: Martinus Nijhoff.

Shughart, W.F., and 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.

Thornton, M., and Ulrich, M. (1999). Constituency size and government spending. Public Finance Review 27: 588-599.

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

Table 1 – Old and new number of legislators

Regions	Old legislators	New legislators	Old inhabitants/ legislators	New inhabitants/ legislators
Abruzzo	43	50	29,797	25,625
Apulia	60	70	68,110	58,380
Basilicata	30	40	20,160	15,120
Calabria	43	54	47,518	37,838
Campania	60	80	96,371	72,278
Emilia Romagna	50	65	80,173	61,671
Friuli Venezia Giulia	60	60	19,810	19,810
Lazio	60	71	88,372	74,680
Liguria	40	51	40,525	31,784
Lombardy	80	80	114,096	114,096
Marche	40	42	36,730	34,980
Molise	30	30	10,906	10,906
Piedmont	60	60	71,495	71,495
Sardinia	80	80	20,600	20,600
Sicily	90	90	56,408	56,408
Tuscany	50	65	70,952	54,578
Trentino Alto Adige	70	70	13,473	13,473
Umbria	30	37	28,016	22,715
Valle d'Aosta	35	35	3,445	3,445
Veneto	60	60	75,681	75,681

Source: www.parlamentiregionali.it

Table 2 – Summary statistics

	Mean	S.D.	Min	Max
CS	48.238	29.947	3.443	113.673
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

Table 3 – Legislature size and regional expenditure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Constant	9.848*	9.593*	7.925**	8.024***	8.152***	9.382***	2.022***	2.335***	6.408***	6.404***
	(5.425)	(5.455)	(3.229)	(2.823)	(2.824)	(1.882)	(0.523)	(0.529)	(1.332)	(1.330)
LEG	0.226***	0.221***	0.223***	0.374***	0.366***	0.357***	0.695***	0.601***	0.510***	0.515***
	(0.053)	(0.054)	(0.054)	(0.064)	(0.065)	(0.040)	(0.061)	(0.065)	(0.091)	(0.092)
GDP	0.099	0.089		-0.198	-0.064		0.016*	0.013	0.017	0.017
	(0.271)	(0.274)		(0.349)	(0.351)		(0.008)	(0.008)	(0.012)	(0.012)
OR	0.021		0.010	0.528***		0.457***	0.017***		0.010***	
	(0.065)		(0.066)	(0.191)		(0.161)	(0.003)		(0.001)	
TRANS	0.302**	0.311**	0.269**	0.290***	0.285***	0.327***	0.713***	0.819***	0.259***	0.260***
	(0.126)	(0.123)	(0.125)	(0.077)	(0.078)	(0.074)	(0.203)	(0.207)	(0.025)	(0.025)
REF	0.644***	0.497***	0.512***	0.404**	0.603**	0.638**	0.540***	0.669***	0.840***	0.840***
	(0.157)	(0.097)	(0.124)	(0.168)	(0.284)	(0.264)	(0.185)	(0.353)	(0.009)	(0.009)
Sample	Large	Large	Large	Small	Small	Small	Large	Large	Small	Small
Adj-R^2	0.412	0.399	0.409	0.625	0.591	0.618				
Obs.	370	383	370	289	289	289	281	292	218	218
Wald	31.99***	31.31***	29.15***	40.52***	45.54***	28.99***	23.19***	23.41***	25.10***	23.54***
χ^2-over id.							75.93***	78.35***	93.42***	94.69***

Numbers in parentheses are robust standard errors. Instruments are three lags of per-capita regional expenditure. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively

Table 4 – Constituency size and regional expenditure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Constant	2.805	2.705	4.834	4.241	5.430	6.568***	2.023***	2.335***	6.108***	6.404***
	(3.595)	(3.559)	(1.169)	(5.008)	(5.106)	(1.397)	(0.523)	(0.529)	(1.332)	(1.330)
CS	0.166***	0.164***	0.165***	0.179***	0.177***	0.173***	0.244***	0.249***	0.210***	0.210***
	(0.019)	(0.018)	(0.017)	(0.029)	(0.029)	(0.016)	(0.022)	(0.023)	(0.019)	(0.020)
GDP	-0.115	-0.105		-0.169	-0.054		0.156	0.135	0.017	0.017
	(0.228)	(0.221)		(0.379)	(0.381)		(0.085)	(0.081)	(0.012)	(0.012)
OR	0.163		0.149	0.468***		0.409**	0.168***		0.100***	
	(0.166)		(0.151)	(0.117)		(0.166)	(0.029)		(0.011)	
TRANS	0.229***	0.227***	0.266***	0.253***	0.250***	0.286**	0.713***	0.819***	0.260***	0.259***
	(0.063)	(0.062)	(0.065)	(0.087)	(0.088)	(0.067)	(0.203)	(0.208)	(0.025)	(0.025)
REF	0.867***	0.855***	0.710***	0.488**	0.538**	0.427**	0.540***	0.690***	0.319***	0.340***
	(0.271)	(0.276)	(0.226)	(0.224)	(0.261)	(0.151)	(0.158)	(0.133)	(0.099)	(0.099)
Sample	Large	Large	Large	Small	Small	Small	Large	Large	Small	Small
Adj-R^2	0.581	0.579	0.578	0.617	0.590	0.612				
Obs.	370	383	370	289	289	289	281	292	218	218
Wald	161.0***	137.7***	114.5***	220.6***	182.6***	157.8***	23.19***	21.46***	23.57***	23.54***
χ^2-over id.							75.93***	78.35***	93.42***	94.69***

Numbers in parentheses are robust standard errors. Instruments are three lags of per-capita regional expenditure. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.