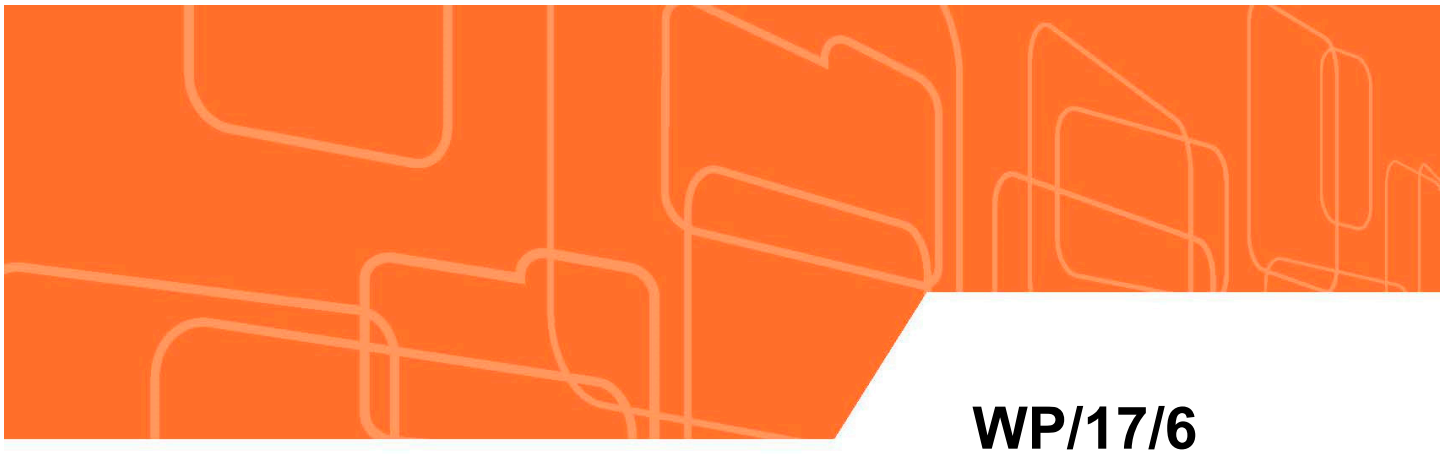

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Fiscal Rules to Tame the Political Budget Cycle: Evidence from Italian Municipalities

by Andrea Bonfatti and Lorenzo Forni

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Fiscal Rules to Tame the Political Budget Cycle: Evidence form Italian Municipalities

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Abstract

The paper provides evidence that fiscal rules can limit the political budget cycle. It focuses on the application of the Italian fiscal rule at the sub-national level over the period 2004-2006 and shows that: 1) municipalities are subject to political budget cycles in capital spending; 2) the Italian sub-national fiscal rule introduced in 1999 has been enforced by the central government; 3) municipalities subject to the fiscal rule show more limited political budget cycles than municipalities not subject to the rule. In order to identify the effect, we rely on the fact that the domestic fiscal rule does not apply to municipalities below 5,000 inhabitants. We find that the political budget cycle increases real capital spending by about 35 percent on average in the years prior to municipal elections and that the sub-national fiscal rule reduces these figures by about two thirds.

JEL Classification Numbers: C21, C23, H62, H72, H77

Keywords: fiscal rules, local government finance, regression discontinuity

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[1] We thank seminar participants at the IMF and the University of Padua.

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I. INTRODUCTION

This paper presents evidence suggesting that fiscal rules can help moderate the political budget cycle. The term "political budget cycle" generally refers to increases in government spending or in the deficit, or decreases in taxes, in an election year or pre-election years, which are perceived as motivated by the incumbent's desire for re-election. Fiscal rules can limit the political budget cycle because they reduce the politician incentives to be profligate in order to be re-elected, by increasing the cost of pre-electoral profligacy if elected.

The focus of the paper is on Italian municipalities during over the early 2000 when they have been subject to the sub-national fiscal rule (Domestic Stability Pact, DSP) introduced in 1999. The effect of the rule on the political budget cycle is identified leveraging on the fact that municipalities below 5,000 inhabitants are exempt from the rule. Our estimates suggest that the political budget cycle increases real capital spending by about 35 percent on average in the three years prior to municipal elections and that the sub-national fiscal rule reduces these figures by about two thirds.

A number of recent papers have used Italian administrative municipal data to address an array of political economy issues. Cioffi, Messina and Tommasino (2012) provide evidence of political budget cycle in capital and overall spending, while Alesina and Paradisi (2014) on the revenue side exploiting the introduction of a new real estate tax in 2011. Gagliarducci and Nannicini (2013) study the effect of the wage on the performance of mayors. Alesina, Troiano and Cassidy (2015) show that younger politicians behave more strategically than older ones. Particularly relevant for our purposes is the paper by Grembi, Nannicini and Troiano (2016), which shows that the relaxation of the DSP for smaller municipalities in 2001 triggered a significant deficit bias.[2]

This paper is related also to three other branches of literature. By assessing how fiscal rules can limit the political budget cycle, our contribution naturally fits in the broad political business cycles literature. See, among many, Rogoff and Sibert (1988), Rogoff (1990), Alesina, Cohen and Roubini (1997), Persson and Tabellini (2000), Brender and Drazen (2005), Shi and Svensson (2006), Brender and Drazen (2008). A number of contributions have assessed empirically the political budget cycle. For a recent one on the political cycle in capital expenditures see Gupta, Mulas-Granados, and Liu (2015). Related to our work is also the literature assessing the political budget cycle at the sub-national level. For example, Coelho, Veiga and Veiga (2006) and Veiga and Veiga (2007) provide evidence of political cycle at the municipal level in Portugal; Foremny and Riedel (2014) in Germany; Drazen and Eslava (2010) provide evidence on Colombia; Brollo and Nannicini (2012) on Brazil. Finally, our paper is also connected to the growing literature on national and sub-national fiscal rules (for example, Beetsma and Debrun 2004, 2007; Debrun, Moulin, Turrini, Ayuso-i-Casals, and Kumar 2008). In this strand of literature, the recent contribution by Grembi, Nannicini and Troiano (2016) is the first to propose "a quasi-experimental design" to control for omitted and unobservable factors that may affect previous results and to better establish the causal effect of the introduction of the rule.

[2] Acconcia, Corsetti and Simonelli (2014) use data on investment expenditure of Italian municipalities to estimate the fiscal multiplier at the local level.

Our paper contributes to these different literatures in several ways. First, it provides further evidence on the existence of a political budget cycle at the local level in Italy and quantifies its effects. Second, it provides new evidence that the central government has enforced the DSP. The fact that the DSP has been enforced by the central government reduces concerns regarding the endogeneity of the rule, although it still leaves open the possibility that omitted and unobservable factors might affect how municipalities have reacted to the imposition of the rule. The regression discontinuity analysis addresses this issue focusing on the behavior of municipalities around the 5,000 population threshold. Finally, and most importantly, it provides novel evidence that the imposition of the rule has reduced the political budget cycle. We believe this is the first paper that provide robust evidence that fiscal rules can limit the political budget cycle. Importantly, even when the introduction of a fiscal rule proves effective, in the sense that helps contain the deficit, it is very difficult to assess whether it is welfare improving. On the contrary, a rule that mitigates the political budget cycle, at least in this respect, is welfare improving.

II. INSTITUTIONAL SETUP AND THE DOMESTIC FISCAL RULE

The Domestic Stability Pact (DSP) was introduced in 1999 in order to include sub-national authorities (regions, provinces, and municipalities) in the efforts to achieve the fiscal targets set at the European level. The operational target of the rule for municipalities (which are about 8,000 in Italy) has changed over the years, being defined as limits in the growth in spending in 2005 and 2006 and with reference to the overall balance prior to 2005 and from 2007 onward. The penalties established for not complying with the DSP included limits on hiring, on spending, and on borrowing for investments (Chiades and Mengotto, 2013). Importantly for our analysis, since 2001 smaller municipalities (those with less than 5,000 residents) have been exempted from the DSP. The exemption aimed at providing some relief to small municipalities in the presence of economies of scale in managing the municipal government. In 2015 the DSP has been discontinued and replaced with a budget balance rule for all local authorities.

As for the governance and elections, the decision making bodies at the municipal level are the mayor (Sindaco), the Executive committee (Giunta comunale), which is appointed and headed by the mayor himself, and the municipal council (Consiglio comunale), endowed with legislative powers. For municipalities with less than 15,000 inhabitants, a simple plurality electoral system applies where each candidate is supported by a single list. Over the 15,000 threshold, mayoral candidates may be supported by more than one list, and a run-off takes place if none of the candidates win an absolute majority of votes at the first round. Since 1993, municipal elections have been held every four years. Since 2000, the duration of the mayor mandate has been extended to 5 years unless particular circumstances (such as the death of the mayor, ex-post incompatibilities, or criminal charges) trigger an earlier resignation. Elections usually occur during the months of May and June.

III. THE DATA

Our analysis focuses on the political cycle in capital spending. In 2007 the operational target for the fiscal rule has been changed from being defined as a limit to spending to a balance definition, therefore our analysis focuses on the period before 2007. Moreover, we were not able to collect all the required information to run our analysis before 2004. Therefore, our data consists mainly of Italian municipalities' budget information from 2004 to 2006. We have combined this information with data on elections at the municipal level, and with information on the mayor (age, education, gender, political party).[3] Table A1 at the end of the paper reports a description of the variables and sources. A summary of the dataset is reported in Table 1.

Even within the window we are focusing on (2004-06) the fiscal rule target has changed. In 2004, the rule stated that the difference between current spending and current revenues could not be higher in real terms than in 2003. In 2005, current and capital spending should have been lower than the average over 2001–03 increased by 10 percent. In 2006, current spending should have been lower by 6.5 percent with respect to 2004 (by 8.1 percent for municipalities with per capita spending over the period 2002–04 greater than their population class average), while capital spending should not have exceeded the 2004 value increased by 8.1 percent. Even though the rule for 2004 did not include investment spending, it was already expected that capital spending would be included in the rule starting from 2005.4 Therefore, given existing lags in investment implementation, municipalities anticipated that starting new investment projects in 2004 could lead to payments in 2005.

Based on our data, total spending of municipalities in ordinary-statute regions[5] represented almost 5 percent of GDP in 2004 (the starting year of our analysis). Capital spending represented about 38 percent of total spending. In real per capita terms, municipalities spent about €600 annually in investment. Regarding the financing, transfers from the regions and the central government over the period represented about 40 percent of overall revenues, own revenues covered the rest. The main taxes financing municipalities were a real estate tax on home property (Imposta Comunale sugli Immobili, ICI), which provided about 43 percent of municipal tax revenues, and a surcharge on the personal income tax (Imposta sul Reddito delle Persone Fisiche, IRPEF), which amounted to about 6 percent of municipal tax revenues.[6]

[3] When a special commissioner is appointed to run the municipality, the information on the mayor's characteristics is missing. In these cases, and also when information on expenditures or revenues from financial reports is not available, we keep the municipality in the sample, using the unbalanced panel.

[4] For example, the Budget Law for 2003 (Law 289, December 27th 2002, Art. 29 Comma11) included a provision stating that the rule from 2005 would have included capital spending and the Economic and Financial Planning Document for 2004-07, issued in July 2003, mentioned the same point.

[5] We exclude regions with special autonomy (Regioni a Statuto Speciale) as these were allowed to set their own fiscal rules for municipal governments.

[6] Municipalities can borrow, but only for investment purposes.

Table 1. Summary Statistics (2004–2006)

Variable	Mean	Std. Dev.	Median	Min	Max	Obs.
		Municipalities				
Capital spending	564	879	336	0	27,965	20,057
Current spending	791	471	688	28	21,725	20,057
Total spending	1,356	1,209	1,050	178	40,984	20,057
Total transfers	705	915	461	20	33,049	20,057
Total revenues	1,602	1,789	1,231	398	109,039	20,057
Long-term borrowing	128	256	62	0	11,466	20,057
Total outstanding debt	1,124	5,705	821	-1,317	652,402	20,041
Taxable income	11,813	3,128	12,065	3,066	31,525	20,084
Population (units)	7,405	42,655	2,458	32	2,705,603	20,084
Population aged 15-64 (%)	64.53	4.45	65.28	32.17	81.58	20,084
Pre-election years (1/0)	0.51	0.50	1	0	1	20,084
		Mayors				
Female (1/0)	0.10	0.29	0	0	1	19,674
Age	51	9.64	51	22	86	19,670
Education (years)	14	3.07	13	5	20	19,161
Party affiliated (1/0)	0.36	0.48	0	0	1	19,674
Mandate (first = 1)	0.81	0.39	1	0	1	20,084

Notes: Variables in real per-capita terms (2010 euro).

IV. IDENTIFICATION STRATEGY

The models originally proposed to explain the political budget cycle could help understand the mechanism through which a fiscal rule can limit it. The first models in this literature (Nordhaus 1975; Lindbeck, 1976) were based on the premise that voters are myopic and that politicians are able to repeatedly fool them by tweaking policies prior to elections. Later models (for example, Rogoff and Sibert 1988, and Rogoff 1990) assumed that voters are rational but do not have full information about incumbents' competence. Voters want to elect the most competent politicians and form rational expectations regarding the incumbent's abilities based on observable current fiscal policy outcomes. A competent administrator is able to provide a given level of public goods at a lower level of taxes than an incompetent one can. The incumbent can signal his/her competence by increasing spending or showcasing new infrastructure projects without at the same time increasing taxes. Before the election, therefore, incumbents will attempt to signal their competence (and thereby increase their chances of re-election) by engaging in expansionary fiscal policy. This leads to a pre-election increase in the government deficit even though competent politicians may be in office. However, even competent politicians that want to signal their higher competence might be reluctant to use all the available fiscal space because they are likely to remain in office and have to live with the consequences of this choice. Fiscal rules, as the DSP, might increase the ex-post cost of a pre-election fiscal expansion.

In order to identify this effect in our context, in the spirit of Grembi and others (2016), we rely on the fact that the DSP does not apply to the municipalities below 5,000 inhabitants. Therefore, our identification scheme compares the municipalities above 5,000 inhabitants (subject to the DSP)

with those with less than 5,000 inhabitants (not subject to the DSP) around election years. We will show that indeed municipalities below the threshold, controlling for other characteristics, display a larger increase in capital spending in pre-electoral years as compared to those above the 5,000 inhabitants, i.e. are subject to a stronger political budget cycle.

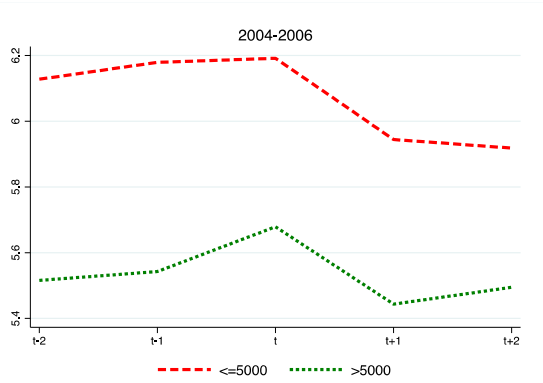
In order to have a homogenous sample, our baseline analysis will focus on the municipalities with less than 15,000 inhabitants. The cutoff at 15,000 is due to the different electoral system for the larger municipalities.[7] An ample literature has shown how different electoral systems can affect fiscal outcomes (for example, Persson and Tabellini 2000, and Milesi-Ferretti, Perotti, and Rostagno 2002; with specific reference to the Italian context, see Ferraresi, Rizzo, and Zanardi 2015) and therefore one needs to be careful in pooling municipalities with different electoral systems as it can lead to bias in the estimates. By limiting the analysis to municipalities below 15,000 inhabitants we lose about 600 municipalities over a sample of about 8,000.

Figure 1 plots the average level of per-capita capital spending (in logarithms) around elections for smaller and larger municipalities. Smaller municipalities are those with less than 5,000 inhabitants. Larger ones are those with 5,000-15,000 inhabitants. On the horizontal axis, t represents the election year. The figure shows the average level of per-capita capital spending in the two years prior and after elections. It shows clearly the political budget cycle, with capital spending higher and increasing in electoral years and in the two years before with respect to the two years after elections. The presence of a political budget cycle in capital spending is confirmed by a regression analysis (not reported) where we regress the log-per-capita capital spending on a dummy equal to one in the electoral year and in the two preceding years (our political budget cycle variable), a measure of revenues (either total per-capita real transfers or total per-capita real revenues), a number of mayors' characteristics (gender, age, education measured in years of schooling, affiliation to a national political party and its ideological stance), other time-varying municipalities' characteristics (proportion of people aged 15-64, taxable per-capita income), municipalities fixed effects and time effects meant to capture common shocks.[8]

[7] A relevant issue in analyzing capital spending at the municipal level is that, in recent years, municipalities have outsourced some capital spending to private companies, usually partially or totally owned by the municipalities itself. This practice sometimes has been instrumental in circumventing the fiscal rule. Unfortunately, information on these companies is extremely scant. One advantage in focusing on small municipalities (with less than 15,000) is that they have outsourced capital spending much less than larger municipalities (Chiades and Mengotto, 2013).

[8] See Bonfatti and Forni (2016) for a more detailed discussion of this point.

Figure 1. Log-Capital Spending per-capita by Electoral Year and Size of Municipality



Next we show evidence that the DSP has been enforced. In fact, in order for the DSP to have an effect on the political budget cycle, it is essential that there is a cost from overspending and/or breaching the fiscal rule. There is no clear evidence in the literature on whether the DSP has been generally enforced or not. Grembi and others (2016), for example, estimate whether municipalities have respected the rule using budget data and then check whether penalties were subsequently enforced over the period 1999–2004. They find "suggestive evidence that the DSP penalties were enforced," as there is a correlation between non-compliance (as estimated by the authors) and subsequent punishment.

For the years 2004–06 we have collected the list of municipalities that did not comply with the DSP from the Interior Ministry, therefore we can test directly whether the DSP has been enforced or not. As discussed, the DSP entails that the municipalities breaching the DSP would face limits on hiring, on spending and on borrowing for investments in the following year. Figures 2 and 3 indeed show that hiring and long-term borrowing (accrual definition) have been remarkably lower for the non-complying municipalities in the year following the breach of the DSP as compared to the complying municipalities. For current spending (Figure 4) the evidence is consistent, although less striking. The DSP entailed bringing purchases of goods and services to a level not greater than in the last year in which the pact was respected. Overall, the presented evidence suggests that indeed breaching the rule carried penalties in terms of fiscal aggregates.

Figure 2. Average Hiring of Municipalities (per 1,000 Inhabitants) by DSP Compliance in Previous Year (2005-2007)

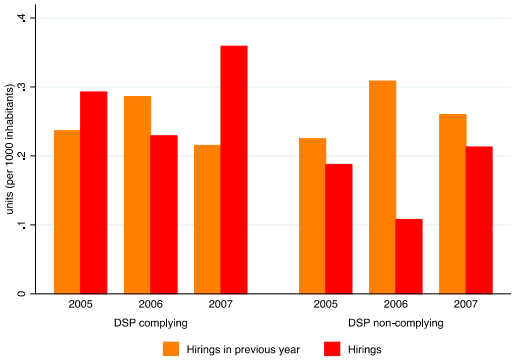


Figure 3. Mean per-Capita Long-Term Borrowing (Accrual) of Municipalities by DSP Compliance in Previous Year (2005-2007)

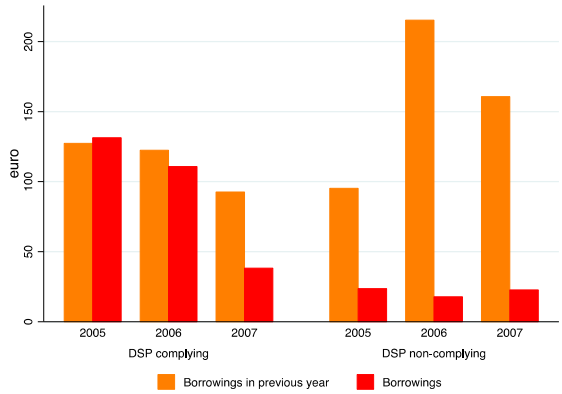
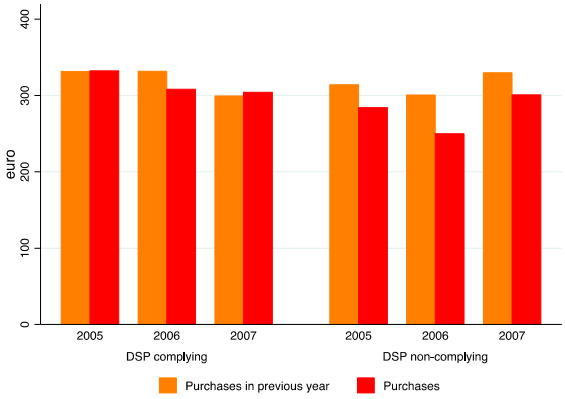


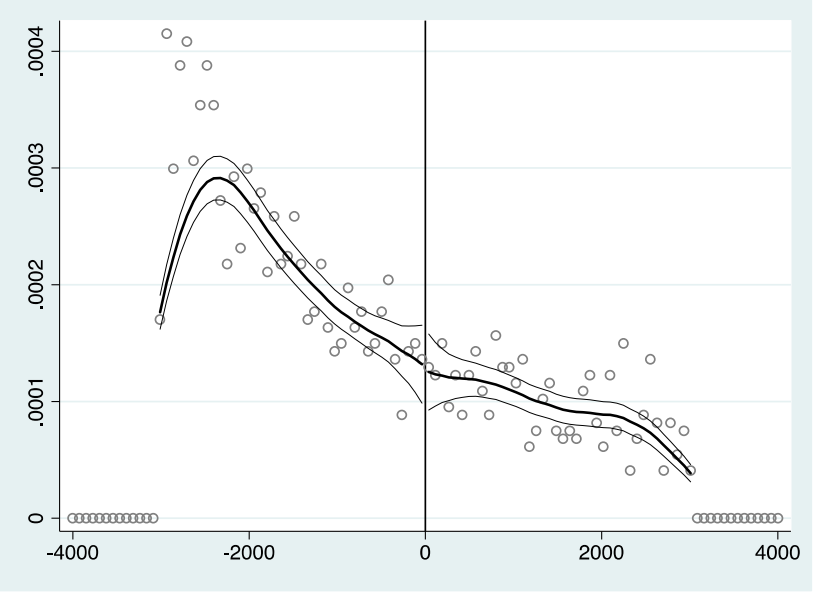
Figure 4. Mean per-Capita Purchase of Goods and Services (Cash) of Municipalities by DSP Compliance in Previous Year (2005-2007)



V. REGRESSION-DISCONTINUITY ANALYSIS

In order to assess whether the political budget cycle is more muted in larger municipalities (subject to the rule) than smaller ones (not subject to the rule) we perform a regression discontinuity analysis around the 5,000 inhabitant threshold. Specifically, we combine a diff-in-diff approach with a regression discontinuity (RD) design, in order to get estimates of the difference in capital spending between pre- and post-electoral years just below and above the 5,000 population threshold. Around the 5,000 threshold the treatment of being subject to the fiscal constraints of the DSP should be as good as randomly assigned. The treatment changes deterministically at the threshold, while other characteristics should not, setting up a sharp identification scheme. In order to assess the validity of the exogeneity of the threshold, we run a McCrary (2008) density test around the 5,000 population threshold in 2006. Figure 5 shows no evidence of any statistically significant jump in the population distribution at the threshold, as it would be the case if mayors managed to keep the population below the 5,000 inhabitants in order to avoid the DSP rules, suggesting that the non-manipulation assumption is not violated.

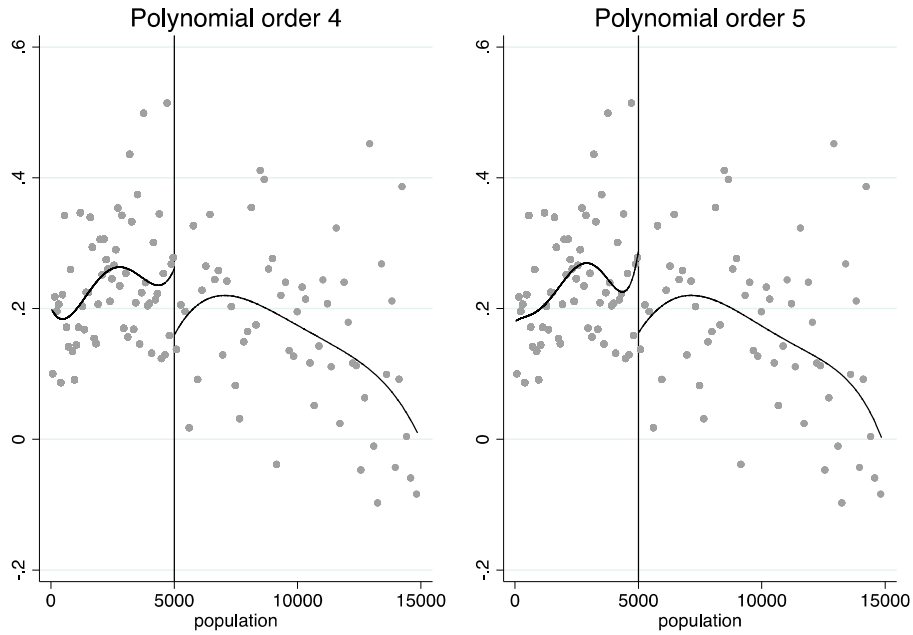
Figure 5. Checking Continuity of the Population Distribution Around the 5,000 Inhabitant Threshold



Notes: Distribution of binned normalized population around the 5,000 population threshold in 2006 (population window 2,000-8,000). The thick line is a kernel estimate and the thin lines are 95 percent confidence intervals (McCrary, 2008). The discontinuity estimate (log-difference in height) is -0.02 (standard error 0.20).

Next we plot in Figure 6 the log-difference at the individual municipal level of pre- and post-election years per-capita capital spending against the municipality population size, to see whether there is a discontinuity around the 5,000 threshold. The log-difference of pre- and post-election years per-capita capital spending is defined considering the election year and the two prior ones as "before" elections, while the two years after elections as "after" elections. We use it as a measure of the intensity of the political budget cycle. In addition, we fit two polynomials in population size (of order 4 in the left panel and of order 5 in the right panel), one for the observations below and one for those above the 5,000 threshold. The fitted lines suggest that indeed the political budget cycle is higher on the left of the 5,000 threshold as compared to the right, where in fact the rule is active. However, the dispersion of the observations is high and, moreover, by taking the pre- and post- elections difference in capital spending we lose many observations.

Figure 6. Difference in pre- vs. post- Electoral Log-Capital Spending per capita



Notes: DSP complying municipalities only. Mimicking variance evenly spaced number of bins using polynomial regression (Calonico et al., 2014). Variables in real per-capita terms (2010 euro).

To confirm this result more formally, we run a regression discontinuity analysis.[9] Our baseline RD specification for per-capita capital spending y_{it} is the following:

$$y_{it} = \sum_{k=0}^{p} (\delta_k P_{it}^{*k}) + Z_{it} \sum_{k=0}^{p} (\gamma_k P_{it}^{*k}) + W_{it} \left[\sum_{k=0}^{p} (\alpha_k P_{it}^{*k}) + Z_{it} \sum_{k=0}^{p} (\varphi_k P_{it}^{*k}) \right] + \beta' X_{it} + \mu_i + \lambda_t + \epsilon_{it} \quad (3)$$

which includes polynomials of order *p* in the normalized variable $P_{it}^{*} = P_{it} - P_c$, where P_c is the 5,000 population threshold, its interactions with the treatment indicator Z_{it}, equal to one for municipalities subject to the DSP and zero otherwise

$$Z_{it} = \begin{cases} 1 & \text{if } P_{it}^{*} > 0 \\ 0 & \text{if } P_{it}^{*} \leq 0, \end{cases}$$

and the electoral dummy W_{it}, equal to one in pre-electoral years (*t = −2, −1, 0*), where *t = 0* is the year of elections, and zero in post-electoral years (*t = 1, 2*). Additional covariates X_{it} include mayor's characteristics (gender, age, education, party affiliation, political color), total per-capita

[9] We have performed robustness checks using polynomials of different order and windows of varying widths around the 5,000 threshold. Results are generally robust but loose significance when the order of the polynomial is below three or the population window is above 3,000 inhabitants.

transfers received by municipalities, the proportion of people aged 15-64 and taxable per-capita income, while μ_i and λ_t are municipality fixed effects and year effects, respectively.[10]

Table 2 reports the estimates at the 5,000 threshold of the political budget cycle effect (the α_0 coefficient of the electoral dummy W_{it}) and the fiscal rule effect on the political budget cycle (the coefficient φ_0 of the interaction between the electoral dummy and the treatment indicator Z_{it}) from fifth-degree polynomial regressions over the 0-15,000 and 4,000-6,000 population windows. The local estimates confirm the existence of budget cycle, as capital spending is 36 percent higher in pre-electoral years, while the fiscal rule proves effective in mitigating the cycle, reducing electoral expenditure by more than 60 percent (column 1). If we restrict the sample to the 4,000-6,000 population window (column 3), the reduction in capital spending in pre-electoral years for larger municipalities more than offsets the average increase of the expenditure in pre-electoral periods. The inclusion of additional covariates (column 2 and 4), while confirming the baseline results, reduces the magnitude and significance of the estimated effects.

Table 2. Political Budget Cycle in log-Capital Spending of Municipalities at the DSP Threshold. RD-FE Estimates (2004-2006)

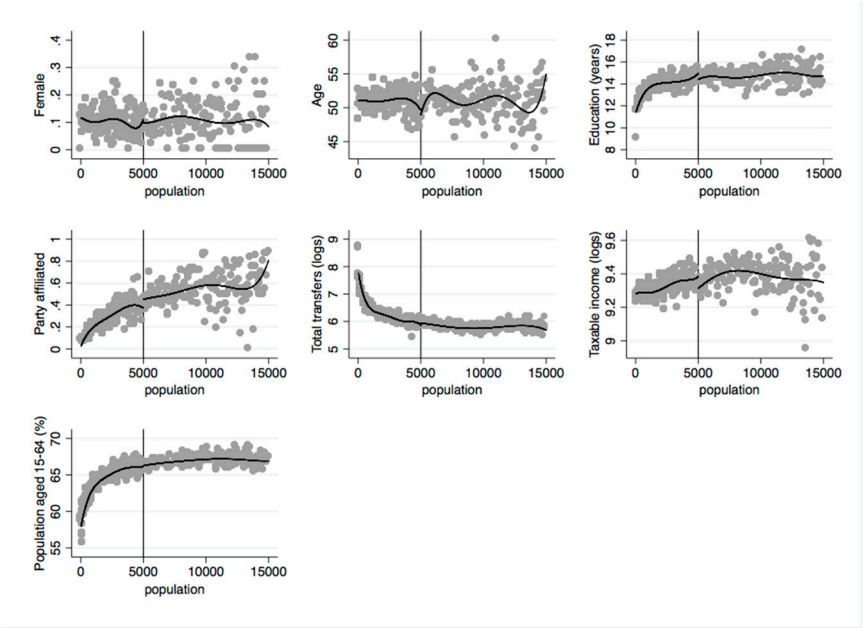
	0-15000		4000-6000	
	(1)	(2)	(3)	(4)
>5000	0.070	0.051	0.383*	0.272
	(0.112)	(0.105)	(0.203)	(0.205)
Pre-election years	0.365***	0.348***	0.525***	0.473***
	(0.090)	(0.085)	(0.186)	(0.182)
Pre-election years x >5000	-0.238**	-0.182*	-0.721***	-0.631**
	(0.114)	(0.109)	(0.276)	(0.289)
R-squared	0.062	0.176	0.107	0.188
Municipalities	5,155	5,010	620	604
Observations	14,848	14,149	1,700	1,627

Notes: Variables in real per-capita terms (2010 euro). All specifications include a fifth-degree population polynomial, its interactions with the electoral and population dummies, time and municipality fixed effects. Other covariates include mayor's characteristics (gender, age, education, party affiliation, political color) and municipality level variables (total transfers per-capita received, proportion of population aged 15-64, taxable income per-capita). Clustered standard errors at municipality level in parenthesis. Significance: *** = 1%; ** = 5%; * = 10%.

We then turn to check whether the control variables, i.e. the pre-determined characteristics of mayors and of municipalities, are balanced on either side of the DSP threshold. Figure 7 shows scatter plots of mayor's characteristics, namely gender, age, years of education and party affiliation, per-capita total transfers, per-capita taxable income and the proportion of population aged 15-64, averaged over evenly spaced population bins around the DSP cut-off. From visual inspection of the (fifth order) fitted polynomials around the threshold no evident discontinuities can be detected.

[10] For other works using municipality fixed effects in regression discontinuity analysis, see for example Petterson-Lidbom (2008) and Ferraresi et al. (2015).

Figure 7. Checking Continuity of Covariates Around the 5,000 Inhabitant Threshold. Population below 15,000 (2004-2006)



Notes: Bins picked to match the variance of the variables (Calonico et al., 2014). Fifth-degree polynomial fit. Variables in real per- capita terms (2010 euro).

Finally, we have to address the issue of the wage of the mayor. By law, mayors earn more as the dimension of the municipality grows (Table 3). Gagliarducci and Nannicini (2013) find that the change in wage for the Italian municipalities above the 5,000 threshold generates a selection of more educated and competent mayors into the job, although there is no evidence that they are less prone to the political budget cycle. The wage of the mayor, sharply increasing at the 5,000 threshold, introduces incentives that can potentially confound the estimated effect of the fiscal rule. In order to investigate whether the higher wage induces mayors seeking re-election to be more fiscally disciplined, we run polynomial regressions, with a 1,000 bandwidth, at other population thresholds where the mayor's wage increases, namely 1,000, 3,000 and 10,000 inhabitants. The rationale is that if the mayor's wage really matters for the political budget cycle we should find some effect also at these other thresholds. The results reported in Table 4 do not support this hypothesis, as we find no significant effects. We do not find it especially at the 3,000 threshold which entails a 50 percent wage increase. This latter result is consistent with those of Gagliarducci and Nannicini (2013).

Table 3. Legislative Thresholds of Municipalities (2004-2006)

Population	Wage of mayor	Wage of executive committee	Size of executive committee	Size of city council
≤1000	1,291	15%	4	12
1000-3000	1,446	20%	4	12
3000-5000	2,169	20%	4	16
5000-10000	2,789	50%	4	16
10000-15000	3,099	55%	6	20

Notes: Wage of mayor is the monthly gross amount in 2000 (current euro); wage of members of the executive committee is expressed as a percentage of the mayor's wage; size of executive committee is the maximum allowed number of executives appointed by the mayor; size of city council is the number of seats in the city council.

Table 4. Political Budget Cycle in log-Capital Spending of Municipalities at Population Thresholds Relevant for Mayor's Wage. RD-FE Estimates (2004-2006)

	1000		3000		5000		10000	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
>threshold	0.106	-0.134	0.018	-0.041	0.383*	0.272	-0.158	-0.152
	(0.190)	(0.175)	(0.171)	(0.182)	(0.203)	(0.205)	(0.247)	(0.225)
Pre-election years	0.095	0.063	0.208	0.147	0.525***	0.473***	-0.219	-0.061
	(0.133)	(0.117)	(0.152)	(0.159)	(0.186)	(0.182)	(0.278)	(0.251)
Pre-election years x > threshold	0.054	0.071	-0.115	0.072	-0.721***	-0.631**	0.278	0.196
	(0.207)	(0.201)	(0.200)	(0.192)	(0.276)	(0.289)	(0.409)	(0.378)
Other covariates	No	Yes	No	Yes	No	Yes	No	Yes
R-squared	0.047	0.192	0.110	0.196	0.107	0.188	0.129	0.176
Municipalities	2,485	2,411	1,183	1,146	620	604	214	211
Observations	7,130	6,797	3,317	3,145	1,700	1,627	559	539

Notes: Variables in real per-capita terms (2010 euro). All specifications include a fifth-degree population polynomial, its interactions with the electoral and population dummies, time and municipality fixed effects. Other covariates include mayor's characteristics (gender, age, education, party affiliation, political color) and municipality level variables (total transfers per-capita received, proportion of population aged 15-64, taxable income per-capita). Clustered standard errors at municipality level in parenthesis. Significance: *** = 1%; ** = 5%; * = 10%.

VI. CONCLUSIONS

This paper has used data on Italian municipalities during the early 2000s to present evidence suggesting that fiscal rules can moderate the political budget cycle. We have used the discontinuity in the application of the rule at 5,000 inhabitants to identify the effect of the rule on the political budget cycle. We find that the political budget cycle increases real capital spending by about 35 percent on average in the years prior to municipal elections and that the sub-national fiscal rule reduces these figures by about two-thirds as compared to the municipalities not subject to the rule. We have also provided evidence that the fiscal rule has been enforced by

the central government, at least over the period 2004–06 for which we have data on the municipalities that have breached the DSP. As far as we know, this is the first paper that provide robust evidence that fiscal rules can limit the political budget cycle. To this extent, it adds to the small and growing literature trying to establish the impact of fiscal rules on budget outcomes. Differently from the papers showing that fiscal rules can have an effect on budget deficits, however, our result has more direct welfare implications. Results showing that fiscal rules can help contain the budget deficit suggest that those rules are enforced, but it does not imply that they are welfare improving. On the contrary, the political budget cycle is inherently inefficient as it distorts spending and revenues for electoral and political purposes. In this regard, our results point to a possible partial welfare-improving role of fiscal rules. In practice, it remains difficult to assess the welfare implications of fiscal rules. In the specific Italian case analyzed in this paper, it is generally accepted that the rule has contributed to reduce local authorities' deficits but at the same time that this has been achieved mainly compressing capital spending. An assessment of the overall welfare effects of the rule, therefore, would have to include the benefits from reductions in deficits and in the political budged cycle, but also the costs of the fall in capital spending.

Table A1. Dataset Description

Variable	Description	Source
Capital spending in real per-capita terms (cash definition)	It is the sum of all cash capital expenditures by municipalities, the largest outlays referring to the construction of buildings, roads, local transport, purchase of furniture and other equipment. Nominal values are deflated by using the national Consumption Price Index (all items, base 2010).	Certificati di Conto Consuntivo - Ministero dell'Interno (http://finanzalocale.interno.it)
Current spending in real per-capita terms (cash definition)	It is the sum of all cash current expenditures by municipalities, the largest outlays referring to personnel and purchases of goods and services. Nominal values are deflated by using the national Consumption Price Index (all items, base 2010).	Certificati di Conto Consuntivo - Ministero dell'Interno (http://finanzalocale.interno.it)
Total spending in real per-capita terms (cash definition)	It is the sum of all cash current and capital expenditures by municipalities, as defined above. Nominal values are deflated by using the national Consumption Price Index (all items, base 2010).	Certificati di Conto Consuntivo - Ministero dell'Interno (http://finanzalocale.interno.it)
Long-term borrowing in real per-capita terms (accrual definition)	It is the sum of annual revenues from loans and bonds issued to fund investment projects. Nominal values are deflated by using the national Consumption Price Index (all items, base 2010).	Certificati di Conto Consuntivo - Ministero dell'Interno (http://finanzalocale.interno.it)
Pre-election years	Dummy equal to one in the three years prior to municipal elections, including the electoral year.	Archivio storico delle elezioni - Ministero dell'Interno (http://elezionistorico.interno.it)
Taxable income in real per- capita terms	It is the sum at municipality level of total incomes as available from the personal income tax returns (IRPEF).	Ministero dell'Economia e delle Finanze
Share of population aged 15-64	It is computed as the ratio of population aged 15-64 over total population.	Demo -Istituto Nazionale di Statistica (http://demo.istat.it)
Age of mayor	The age dummy is equal to one if the mayor has an age above the median.	Anagrafe degli Amministratori Locali e Regionali -Ministero dell'Interno (http:///amministratori.interno.it)
Education of mayor	Education is measured in years of schooling by converting ISCED levels. Dummies for three education categories are obtained by aggregating ISCED levels as follows: low (0-2), middle (3-4) and high (5-8).	Anagrafe degli Amministratori Locali e Regionali -Ministero dell'Interno (http:///amministratori.interno.it)
Party affiliation of mayor	Dummy equal to one if the list or coalition supporting the winning candidate mayor at municipal elections is not a "Lista civica", that is a list not affiliated to a national or regional party.	Anagrafe degli Amministratori Locali e Regionali -Ministero dell'Interno (http:///amministratori.interno.it)

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