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Municipality Budget Rules and Debt: is the Italian regulation effective*?

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Abstract

In this paper we investigate the Italian regulation on local government budget related to the European fiscal rules (the so-called Domestic Stability Pact), the Constitutional golden rule, and the pre-existing ceilings on new borrowing, with the intent to study the overall effect on local debt and investment expenditure. Our focus is on the municipality level of government. We use a dataset encompassing the main budget items of virtually all municipalities for the period 1999-2009 to perform panel estimation of the efficacy of local fiscal rules in terms of debt reduction and to detect possible unintended effects on investment spending. Empirical evidence supports the conclusion that the Italian system suffers from a lack of coordination between budget constraints and borrowing limits. Our main conclusion is that the decentralization process in Italy has not found an adequate solution yet: on the one hand, local administrations are not equipped to deal with the increased financial responsibility and the progressive sophistication of financial markets; on the other hand, central government has been inconsistent in devolving fiscal powers to municipalities while at the same time adopting multi-layered regulations to restrain local fiscal autonomy in order to pursue the overall public finance control.

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(**) Bank of Italy. The views expressed in the article are those of the author and do not involve the responsibility of the Bank.

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The EMU fiscal rules designed to ensure the stability of the public finances of Member States only hold central governments responsible for disobedience, urging a strengthening of control over local government accounts and leading to the adoption of Domestic Stability Pacts (DSPs) among the different levels of government. This has been the case, since the early 2000s, of a large group of EMU Member States such as Spain, Germany, The Netherlands, Belgium, Austria and Finland.¹ DSPs are regulated according to national laws and have been adopted both in States with a federal Constitution, such as Germany for example, and in unitary States, as is the case of Italy. DSPs may differ in many respects: they may either be negotiated between the levels of government or imposed by the central government; they may include expenditure rules or a budget constraint at the local level; they may be defined yearly or over a multi-year budget horizon; they may – or may not – involve local debt. In Italy, the DSP was first introduced in 1999 and has been annually amended by the Italian Parliament. Although it has been modified several times, the Italian DSP can be described as a budget rule for local and regional authorities² which is only partially consistent with the numerical deficit and debt targets (3 per cent and 60 per cent of GDP respectively) known as the “Maastricht rules”. DSP stepped in the pre-existing local debt regulation during an ongoing decentralisation and fiscal federalism reform. Over time, the set of rules originally introduced by the Maastricht Treaty evolved, leading to the Stability and Growth Pact (SGP), which explicitly stresses the relevance of pursuing structural balanced budget for the general government. As far as public debt is concerned, the Maastricht fiscal rules prescribe an obligation to reduce the debt-to-GDP ratio “at a satisfactory pace” to under the

¹ Broyles *et al.* 2009; Patrizii *et al.*, 2006; Gastaldi *et al.*, 2009.

² The Italian DSP involves Municipalities, Regions, and Provinces.

agreed threshold of 60 per cent, implicitly requiring excess-debt countries (Greece, Italy, Portugal and Spain) to plan a debt reduction path consistent with a forward-looking constraint.

In such a framework, one of the challenges of the European fiscal rules was that of controlling public finances without discouraging public investment. In meeting this challenge the role of local governments – and thus coordination among the levels of governments – is crucial, given that a high share of public sector capital expenditure passes through local budgets.

In a first phase, numerical rules stimulated better fiscal discipline: until 2008 fiscal deficits were kept under the 3 per cent threshold for most of the time and the debt-to-GDP ratio was successfully stabilized in Italy and several other countries.

In a second phase, after the financial crisis, the Maastricht rules proved to be inadequate to deal with the new economic framework: GDP collapsed and deficit- and debt-to-GDP ratios experienced a sharp increase almost everywhere, as effects of both higher deficits generated by the crisis and lower GDP. The long period of sovereign debt crises and economic recession experienced by the European countries put the emphasis on the issue of fostering economic growth and public investment, while maintaining fiscal sustainability.

This paper focuses on local debt and investment expenditure by Italian local governments before the crisis.³ In particular, it investigates the interaction between the two sets of rules, on debt and on budget deficits (i.e. the DSP) to assess whether it may have created perverse incentives which actually prevented Italian municipalities from achieving fiscal soundness. The functioning of the DSP

³Public balance sheet trends during a time of global financial distress do not allow an assessment of the general efficiency of the fiscal rules.

and local debt rules is examined by using data from local budgets for the decade 1999-2009. The paper is organized as follows. Section 2 briefly summarizes the literature on hard and soft budgets constraints, and on the impact of the Italian fiscal rules on local government budgetary policies. Section 3 describes the process of fiscal decentralization in Italy over the last two decades and gives details of the DPS and debt rules. Section 4 presents empirical estimations on the efficacy of the fiscal rules in limiting debt without discouraging investment. Section 5 concludes.

2. Fiscal discipline in a decentralized setting

A complete review of the theoretical and empirical literature on hard and soft budget constraints is beyond the scope of this paper, but a few conceptual clarifications can be useful to understand the functioning of the Italian fiscal rules and the empirical evidence presented in this paper.

The seminal definition of soft budget constraints by Kornai (1979, 1980) and Kornai *et al.* (2003) has been widely employed to describe the effect of the possibility for higher-level government to bail out local governments as a consequence of fiscal and financial distress. As clarified by Wildasin (2004), the “mere existence of intergovernmental transfers from the higher level to the lower level of governments does not seem to capture the intuitive notion of bailout”.⁴ In fact, intergovernmental transfers “should somehow reflect “irregular” or extra-normal transfers, perhaps “necessitated” by imminent financial insolvency of lower-level governments”.⁵ Moreover, “bailouts do not necessarily represent soft

⁴ Wildasin (2004), pag. 253.

⁵ Wildasin (2004), pag. 253.

budget constraints, but expectations of bailouts often do".⁶ Government credibility has been largely investigated by the literature in a sequential game framework, stressing the role of expectations on the local government side and the claim for commitment on the part of the central government (Inman, 2003). In the Second Generation Theory of Fiscal Federalism, the models by Goodspeed (2002) and Wildasin (1997) are considered seminal for setting the conditions under which soft budget constraints arise and need to be hardened. Even though the two models differ in their assumptions – i.e. in the former a problem of re-election for the central government, and in the latter the presence of spill-over effects between jurisdictions – both share the conclusion that fiscal institutions are crucial. Rodden *et al.* (2003) point out several aspects of fiscal institutions relevant for avoiding soft budget constraints and bailouts: "vertical fiscal imbalances", local taxation design and a grant system are all crucial. In particular, in order to avoid the previously-mentioned danger of a bailout "hidden" in the system of intergovernmental transfers, Rodden *et al.* (2003) suggest that an intergovernmental transfers system must meet its basic allocative and redistributive functions without being subject to manipulation.

The idea of avoiding soft budget constraints by using fiscal rules to limit sub-national government borrowing has been widely discussed. On the one hand, fiscal rules may be inefficient if capital markets work efficiently and "market discipline" automatically regulates local government behaviour: poor fiscal performances imply higher interest rates or limited capital access.⁷ In this framework, financial ratings provide important signals to the voters about the fiscal responsibility of their administrators. However, several conditions must be met in order to verify

⁶ Rodden *et al.* (2003).

⁷ On this topic see, for instance, Wilson (1983).

the efficiency of local public debt markets: local governments should operate in a free market without any privileged borrower position; information on the borrower's outstanding debt and ability to repay should be freely available to potential lenders; there should be no perceived chance of a bailout in the case of default; and the borrower's institutional structure should guarantee reaction to market signals before being excluded from new borrowing (Lane, 1993; Ter-Minassian *et al.*, 1997). Unfortunately, these conditions are rarely all realized simultaneously and most countries adopt fiscal rules by envisaging an entire spectrum of ways to control sub-national government borrowing.

The pros and cons of different approaches to limiting debt for the lower tiers of government have been discussed in a positive perspective too, starting from the historical experiences of US local governments.⁸ In fact, the drawbacks of fiscal debt rules, particularly in the form of numerical rules, have been widely studied. As Wagner points out, "*the empirical rejection of debt limitation is based upon the observation that, regardless of their possible conceptual merits, the limitations have been fully circumvented*".⁹ Debt rules can be eluded by reclassification of expenditures from current to capital items, if a sort of golden rule applies, or via the creation of instrumental entities whose operations are kept off-budget,¹⁰ or by the use of debt instruments not included in the definition of debt limits.¹¹

As far as Italy is concerned, the adoption of multifaceted fiscal rules which cover both local debt and deficit (the DSP), which will be fully illustrated below, sparked a lively debate among both policymakers and scholars. A first strand of

⁸ The long experience of US local authorities has been widely analysed (see, among many others, Pogue, 1970, and more recently Mahdavi *et al.*, 2011).

⁹ Wagner (1970), p. 297.

¹⁰ For a very interesting debate on this topic, see Bennett *et al.* (1982), Blewett (1984), Bennett *et al.* (1984), and Marlow *et al.* (1989).

¹¹ Among many others, see Granof (1984).

contributions¹² appeared at the time of the introduction of the DSP discussing whether this mechanism had been properly designed to help control the general government deficit, the main concern in the first phase of EMU. In the following years, a few papers¹³ tried to assess the effectiveness of the design of DSP by looking at the level of compliance with the rule. Brugnano *et al.* (2009) use balance sheet items of Italian municipalities for the first time to build a proxy for DSP compliance. By using a descriptive analysis of these data, the paper shows the difficulty in identifying a specific characteristic of the Italian municipality as the explanatory variable of compliance with the DSP: neither the regional location nor the size of local administrations can explain the differences in yearly compliance with the fiscal rule. The same paper first suggested the possibility of overshooting the local fiscal rule at the national level. This possibility means that it is useful to consider the sum of the budget surpluses/deficits of compliant/non-compliant administrations for different geographical areas. Paziienza *et al.* (2008), for instance, simulate aggregate DSP compliance at the regional level, stressing the opportunity to differentiate fiscal rules at the regional level in order to reduce the probability of overshooting.¹⁴

In a nutshell, the fact that the rule has been changed virtually every year¹⁵ prevents scholars from arriving at a consolidated and stable judgment about its efficacy. More recently, the Italian fiscal rules have been analysed from a different point of view: instead of focussing on compliancy, recent contributions have been trying to understand the effect of these rules on the general policy choices and

¹² Among many others, see Balassone *et al.* (2001a, 2001b, 2001c); Bosi *et al.* (2003); Giarda *et al.* (2001); and Pisauro (2001).

¹³ Patrizii *et al.* (2006); Brugnano *et al.* (2009).

¹⁴ The idea that DSP surpluses/deficits can be monitored at the regional level by regional authorities has been recently introduced in the latest constitutional reform (see art. 119 as modified by L.1/2012).

¹⁵ This is probably due to the fact that the DSP rules have to be confirmed by the Italian Parliament during the budget session. In other words, a propensity to modify may be induced by short-term fluctuations of the economy. A detailed description of the budget constraint can be found in Patrizii *et al.* (2006), and Brugnano *et al.* (2009).

incentives for administrators. More precisely, two works (Grembi *et al.* 2012; Cioffi *et al.* 2012) focus on the interplay between fiscal rules and political budget cycles. Grembi *et al.* (2012) take advantage of the 2001 relaxation of fiscal rules, i.e. the exclusion of small local municipalities from DSP constraints, to verify the effect of this change in a quasi-experimental framework (by using regression discontinuity techniques). They prove that a relaxation of fiscal rules substantially worsens budget deficits. In addition, they show that political factors – namely, re-election incentives and bargaining between political parties in the legislative body – are a crucial determinant of deficit bias, which only arises when mayors can run for re-election. Cioffi *et al.* (2012) prove that, in addition to a clear political cycle in the expenditure path, there is a difference between mayors affiliated and not affiliated to a national political party. Only mayors not affiliated to a national party seem to be responsible for an election-driven expenditure cycle. In addition, they find that the DSP reduces the effects of the political cycle.

Closer to the aim of this paper, a first attempt to evaluate the impact of the DSP on local capital expenditure was performed by ISAE (2007), with descriptive statistical analysis limited to the period from 2003 to 2005. In addition, Chiades *et al.* (2013) study the consequences of the DSP on local capital expenditures and prove that municipalities subject to the rules reduce their investment more significantly than those which are not subject. Finally, the only study on the functioning of the debt rules and the evolution of local debt between 1999 and 2007 is performed by Bardozzetti *et al.* (2008), with a detailed descriptive analysis. To our knowledge, the consequences of both the DSP and the debt rules for the path of local debt and investment expenditure have not yet been studied.

This is the aim of the present paper, with a multivariate analysis and for the entire decade 1999-2009.

3. Decentralization and fiscal rules in Italy

In the 1990s, some important changes characterized the Italian fiscal framework. On the one hand, a gradual strengthening of local government autonomy started, in response to social and political pressures mainly originating in the north of the country.¹⁶ On the other hand, a process of public finance consolidation took place, accelerated by the aforementioned "Maastricht rules". These two lines of change – decentralization and budget discipline – have to some extent been divergent and their interrelationship is still problematic.¹⁷

As far as decentralization is concerned, since the mid-1990s municipalities have become the level of government mainly responsible for administrative tasks. The accountability of local politicians has been reinforced by the direct election of majors, devolution of public spending, an increase in local taxation autonomy¹⁸ and a corresponding decrease in intergovernmental transfers from the central government. The increase in municipality tax autonomy can be appreciated from Figure 1, which shows that local taxes represented around 30 per cent of total local revenues between 2000 and 2008. This greater tax autonomy is associated with a clear pro-cyclical capital expenditure pattern. After a sharp reduction in the share of investment in total expenditures during the 1980s (10 per cent between

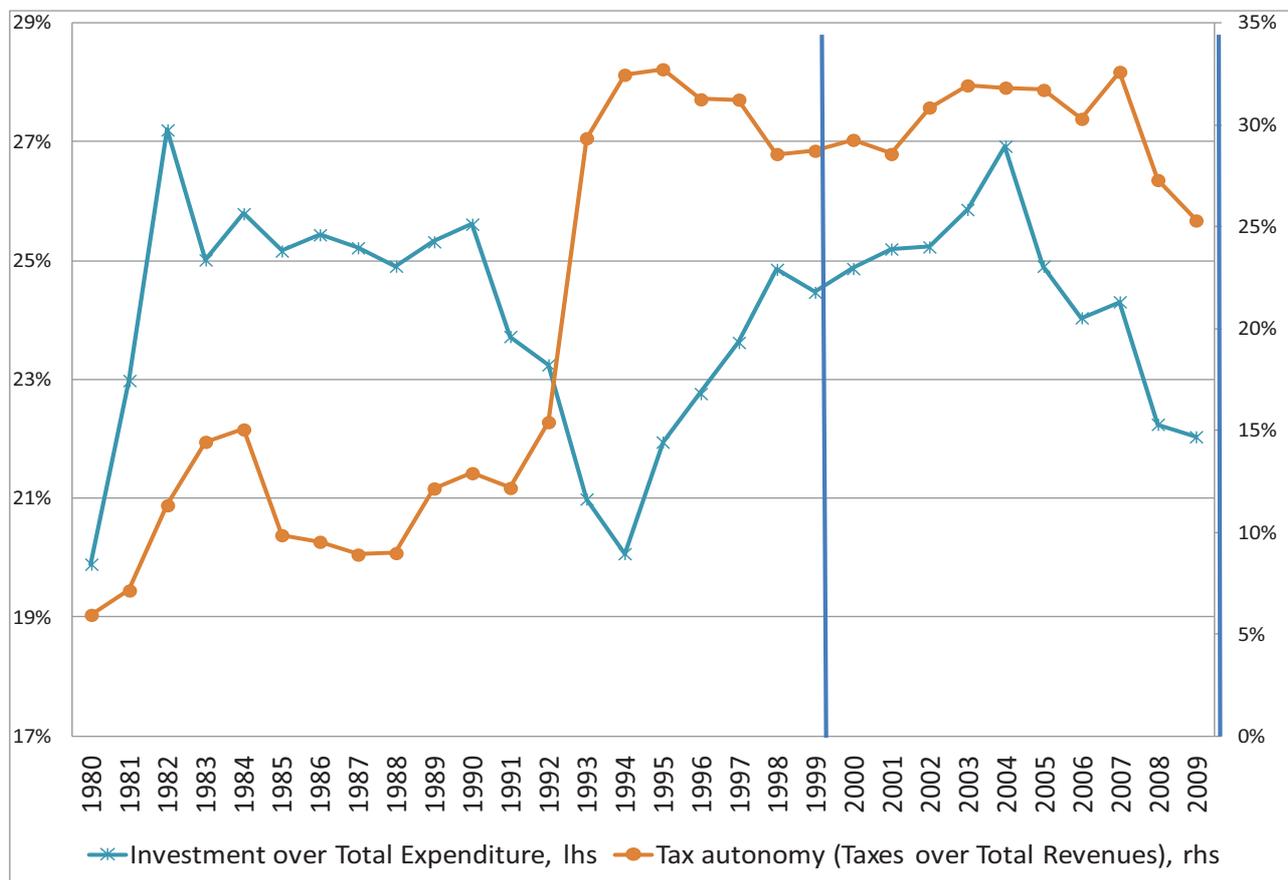
¹⁶ This drive towards decentralization and devolution was pushed by the Lega Nord party, a political formation which emerged at the beginning of the 1990s supporting secession of the northern regions from Italy.

¹⁷ Balassone *et al.* (2001a) and Bordignon (2006).

¹⁸ Since 1992, municipalities have been managing the local property tax and collecting a surcharge on personal income tax.

1982 and 1994), an increase to 31 per cent took place in the following decade and a new contraction between 2005 and 2009.¹⁹

Figure 1
Italian municipalities: tax autonomy and investment expenditure 1980-2009



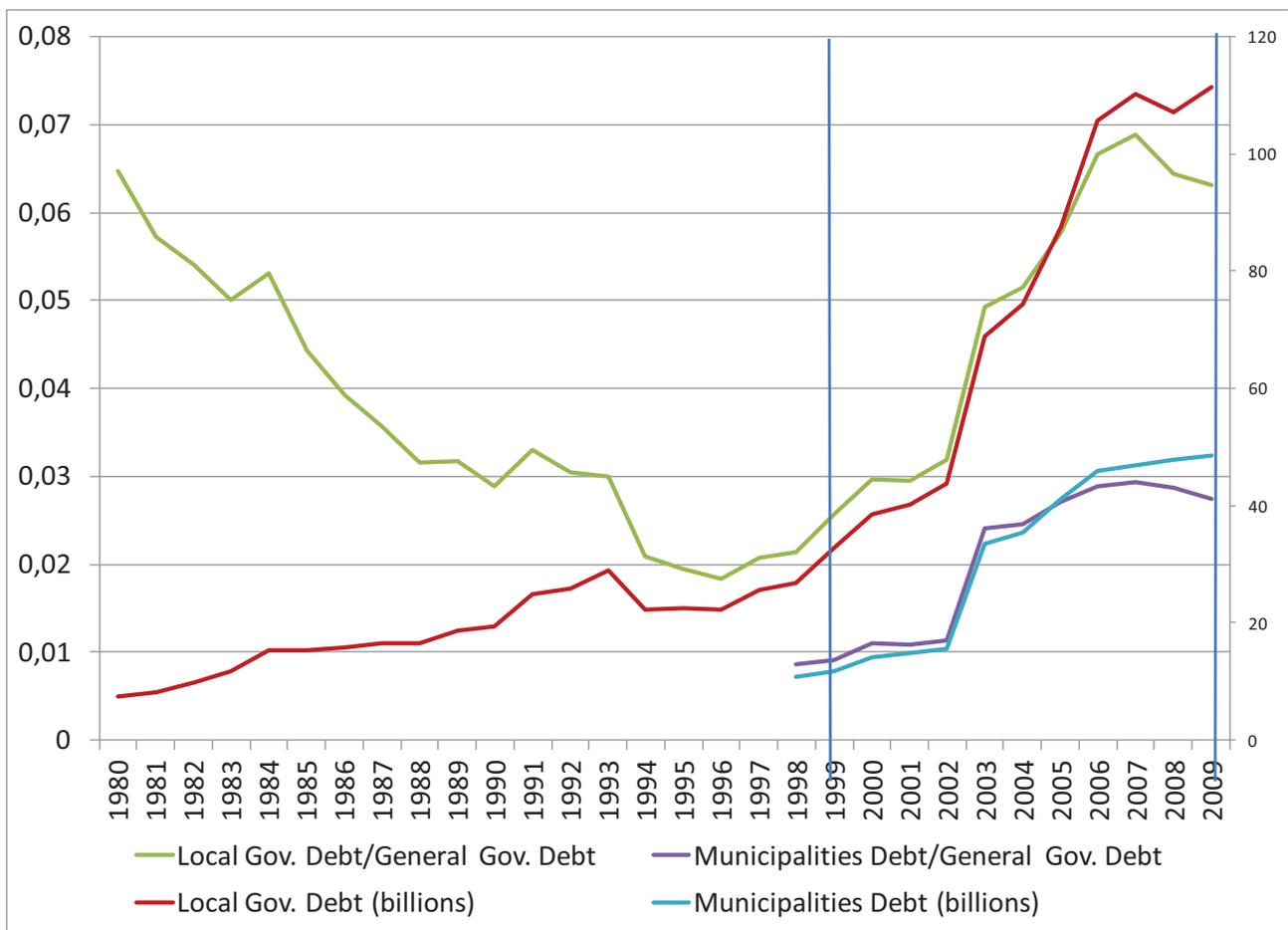
Source: Italian National Statistical Office

Fiscal autonomy was not confined to revenues and expenditures: municipalities were authorized to outsource specific services, to privatize some others, and to manage their debt by using new financial instruments available in the market. In particular, municipalities were allowed to issue bonds directly on the market and to carry out debt restructuring operations (even by means of derivative instruments) in order to take advantage of the ongoing reduction in interest

¹⁹ The two vertical blue lines in Figure 1 identify the period chosen for the econometric analysis presented in Section 4.

rates.²⁰ As Figure 2 shows, in the decade 1999-2009 local government debt increased both in level (from €28 to €108 billion, right-hand axis) and as a share of total debt (from 2.2 per cent to 6.2 per cent, left-hand axis); the same pattern characterizes the sub-sector of municipalities.²¹

Figure 2
Italian Local Government: Debt level and share to General Government debt 1980-2009 (billion Euros and percentage points)



Source: Bank of Italy

3.1 Domestic Stability Pact

²⁰ The interest rate reduction followed Italian participation in EMU.

²¹ Data on municipalities' debt are available from 1998.

Parallel to the fiscal decentralization process, the alarming effects of which on public accounts were probably initially underestimated by Italian central governments, the Maastricht fiscal rules called for a new “domestic” regulatory framework to coordinate public finances at all levels of government. As already mentioned, in 1999 the Italian DSP was introduced as a budget rule setting constraints on the deficits of local authorities.

As stated in Section 2, the DSP mechanism has been studied at length without a consolidated judgement about its efficacy being achieved, due partly to the fact that the rule has changed virtually every year. The main characteristics of the DSP – i.e. the municipalities involved, the type of rules, the budget items included and sanctions – together with the most important changes over the decade 1999-2009, are summarized in Table 1.

As shown in the upper part of the table, the DSP budget constraint was initially enforced on all municipalities.²² Because of the non-negligible compliance costs, municipalities with fewer than 5,000 inhabitants were excluded in 2001; the threshold was reduced to 3,000 inhabitants in 2005.

Table 1. Main characteristics and changes in the DSP rules and sanctions

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Municipalities enforced											
All	Yes	Yes									
With more than 3000 inhabitants							Yes	Yes	Yes	Yes	Yes
With more than 5000 inhabitants			Yes	Yes	Yes	Yes					
DSP Target											
Deficit	Yes	Yes	Yes		Yes						
Expenditure ceiling							Yes	Yes			
Both deficit target and expenditure ceiling				Yes		Yes			Yes	Yes	Yes
Items included											
Capital expenditure	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Interest payments	No	No	No	No	No	No	Yes	No	Yes	Yes	Yes
Revenue from sales of real estate	No	No	No	No	No	No	Yes	Yes	Yes	No	No
Revenue from dividends and sales of shares in public companies	Yes	No									
Sanctions											
Debt not allowed	No	No	No	No	Yes	Yes	Yes	Yes	No	No	Yes

Source: Budget laws, several years.

²² In fact, the legal framework differs between municipalities belonging to Ordinary Statute (80 per cent of the total) and to Special Statute regions, as the latter may modify the DSP target for the municipalities in their territory.

The changing nature of the DSP targets (deficit-based rules and/or expenditure cap) are both summarized in the second tier of Table 1 and stylized in formulas (1)-(3). Briefly, from 1999 to 2001 and again in 2003 municipalities had to balance their budgets; in 2002, 2004, 2007 and 2009 they were subject to both a balanced budget and an expenditure ceiling. In 2005 and 2006 only the expenditure ceiling was enforced. Specification of the DSP targets – in terms of deficit rules and/or expenditure caps – is not enough to convey the complexity of the constraints: in order to work out the DSP target, different items have been included/excluded each year; moreover, current and past budget items have to be taken into account and both an accrual and cash basis need to be considered.

We define R_t and E_t as total revenues and total expenditures, $B_t=R_t-E_t$ as the yearly budget balance, and a_t^j as the policy parameter applied to the actual budget B_{t-2} to obtain the target B_t^{target} . The parameter a_t^j ranges between 0 and 1 and is differentiated between compliant ($j=1$) and non-compliant ($j=0$) municipalities. The budget target is defined as follows:

$$B_t^{\text{target}} = a_t^j B_{t-2} = a_t^j (R_{t-2} - E_{t-2})$$

(1)

We define an expenditure cap E_t^{target} as

$$E_t^{\text{target}} = b_t E_{t-2},$$

(2)

where the parameter b_t represents the ceiling in terms of a percentage of the previous years' expenditure.

As a generalization, the DSP target ($\text{DSP}^{\text{target}}$) may be described as follows:

$$DSP^{target}_t = \alpha [B_{t-2} + \min(B^{target}_t, E^{target}_t)] + \beta B^{target}_t + \delta E^{target}_t$$

(3)

$\alpha = 0, \beta = 1, \delta = 0$ in $t = 1999, 2000, 2001, 2003$

$\alpha = 1, \beta = 0, \delta = 0$ in $t = 2002, 2004, 2007, 2008, 2009$

$\alpha = 0, \beta = 0, \delta = 1$ in $t = 2005, 2006$

According to this rule, the municipality is compliant if $\alpha=1$ and $B_t \geq [B_{t-2} + \min(B^{target}_t, E^{target}_t)]$, or $\beta=1$ and $B_t \geq B^{target}_t$, or $\delta=1$ and $E_t \leq E^{target}_t$. Although the DSP does not rule debt financing directly, it may have affected the level of local debt. This could have happened through the inclusion of interest payments and investment expenditure in the DSP targets and sanctions, investment being eligible for debt finance unlike other expenses. More precisely, the third tier of Table 1 shows that capital expenditures were excluded from the definition of expenditure (E_t) relevant for the DSP target until 2004, while they were taken into consideration thereafter. Interest payments were excluded until 2004, included in 2005, excluded again in 2006, and re-included in more recent years. In addition, in some years some revenue items could be considered in the DSP target balance subject to their use to reduce debt (revenue from the sale of real estate, from the sale of shares in local public companies, and dividends).

The intended goal of indirectly reducing local debt through the DSP is somehow embedded in the sanction system described in the bottom part of Table 1. Among the different kind of sanctions, it is worth highlighting that from 2003 to 2006 non-compliant municipalities were not granted access to debt finance for their investments. This rule was abolished in 2007 and 2008 but has recently been restored.

3.2 Debt-related rules

As long as municipalities experienced limited fiscal autonomy – i.e. until the early 1990s (Figure 1) – financing decisions and debt management were in the hands of central government: local authority finances were mainly transfer-based, with most funds earmarked or allocated for equalization. If extra funds were needed, only a fixed-rate mortgage issued by a public financial institution (*Cassa Depositi e Prestiti*) could be allowed. Moreover, interest expenses and mortgage instalments were secured and even paid by the central government. This risk-free framework obviously weakened local administrators' budget constraints and expenditure efficiency, generating overspending. Moreover, local administrations did not need to gain experience in dealing with financial markets and managing financial instruments. When local taxes were introduced in the 1990s and the share of expenditure covered by intergovernmental transfers gradually declined, responsibility for investment and debt financing was abruptly shifted to municipalities. Notwithstanding the limited share of local debt (roughly 1 per cent of total general government debt in 1999, as shown in Figure 2), it became progressively clear that the newly-acquired responsibility should be carefully monitored by central government. This became particularly urgent when the budget balancing requirements imposed by the DSP produced incentives to engage in off-budget manoeuvres.²³

Regarding access to borrowing, municipalities were traditionally constrained by a golden rule (borrowing is only allowed to finance investment expenditures), but this principle became a *hard* rule after its inclusion in the Italian Constitution

²³ Among the drawbacks of a numerical rule, as stressed in the economics literature, there are incentives to bypass rules by implementing specific accounting practices. In the case of debt, this can be done by transferring debt to other entities not subject to the rules, by sale and lease-back contracts or by specific old-debt restructuring, as in the case of derivative contracts.

(article 119) in 2001.²⁴ In addition, a borrowing constraint was enforced in the form of a limit on the issuance of new debt: this is a numerical ceiling set as the ratio of interest expenditures to current revenues. In 1996, municipalities were authorized to issue bonds directly, under a strict set of constraints including the aforementioned golden rule, as well as ceilings on commission expenses and interest premiums and a compulsory method of amortization. With the entry of Italy into EMU, the so-called "euro dividend" led to a sharp decrease in Italian interest rates and the restructuring of old fixed-rate debt became a priority (the 1-year euribor was 7.51 in December 1994 but 1.24 in December 2009). In order to restructure the debt stock and to promote new borrowing opportunities, those constraints were relaxed: municipalities were authorized to issue "bullet bonds"²⁵ and use derivative contracts to reshape debt and reduce borrowing costs. Derivatives were mainly OTC (over the counter) financial contracts that envisaged an interest flow exchange but typically included several clauses and options which needed specific expertise to evaluate them. After a while, clear evidence of improper use of derivatives emerged: the restructuring contract often envisaged both/either a sizeable cash premium (up-front) to be paid to the municipality at the signing of the contract and/or a change in the time span of the underlying debt contract. These practices raised an issue of accounting transparency. As a result, the use of derivative contracts has been progressively subjected to constraints, and since 2008 municipalities have been totally prohibited from using them. High degrees of reliance on market discipline were embedded in the original policy design. However, as noted in Section 2, the efficacy of financial markets in

²⁴ The constitutional status of the golden rule requires an unambiguous definition of investment expenditure and debt in order to avoid the transfer of current expenditure items to capital expenditure.

²⁵ Bullet bonds are bonds with a single solution reimbursement of the capital at maturity. Sinking funds and amortizing swap contracts were imposed with the aim of limiting moral hazard behaviours by current local administrations, which were issuing debt to be repaid by future administrations. Notwithstanding some sizeable emission by the largest cities, the bond market has not really developed, probably due to a lack of transparency of municipalities' budgets.

disciplining local governments' fiscal choices and in rating local debt greatly depend on a set of hypotheses that are rarely met in practice.

To summarise, in Italy local debt finance regulation has mainly relied on constraints on issuing new debt rather than on outstanding debt (as in the Maastricht rule). The constraints are represented by (a) the aforementioned constitutional golden rule, (b) DSP-related sanctions, and (c) the numerical ceiling on interest payments, which can be sketched as follows:

a) $\Delta D_t \leq INV_t$

b) $\Delta D_t = 0$ for DSP-non-compliant local governments;
(4)

c) $\Delta D_t > 0$ if $INT_t/R_t < c_t$,

where ΔD_t stands for debt variation, INV is investment expenditure, INT is interest payments and c_t is the policy numerical parameter defining the interest ceiling.²⁶ Rule c) obviously cannot per se prevent the dynamics of debt repayments and future revenues from being inconsistent over time. It was adequate only as long as a risk-free framework for local authorities prevailed, in which local revenue consisted substantially of transfers, centrally pre-determined and relatively stable, and local debts were issued at fixed rates. Indeed, under such circumstances the dynamics of both the numerator and the denominator of the policy parameter were somehow under the control of the central government, so that debt financing could be effectively calibrated by the central powers. In a framework of rising fiscal autonomy and availability of sophisticated financial instruments, however, this rule can no longer be effective in general unless the numerical parameter is

²⁶ The parameter c is fixed by law and has changed over time. In particular, $c=25$ per cent in 1999, 2000, 2001, 2002, 2003 and 2004, $c=12$ per cent in 2005, and $c=15$ per cent in 2006-2009.

set at a very low level, therefore binding any debt increase. It is relatively easy to put off debt-service-related expenses by using adequate financial instruments.²⁷

4. Are debt and fiscal rules effective? Evidence from Italian municipalities

4.1 The data

To gain some hints on the role of fiscal rules in municipality behaviour we run some panel regressions on a micro-dataset built by collecting municipality main budget data for the period 1999-2009, together with other specific characteristics, such as locality, population and average taxable income. The dataset contains information on almost all Italian municipalities (8,099 out of 8,100 for 2009) with more than 89,000 total observations.²⁸ Due to incompleteness and incongruence in some balance sheets, we were forced to drop a small proportion of municipalities (around 100 each year) and therefore the total number of observations we use in the empirical analysis amounts to 87,311. For each municipality we compute annual balance sheet ratios and the fiscal rule variables in formulas (3) and (4), taking into account the yearly changes in the rules and sanctions applicable.

The basic characteristics of the dataset are shown in Table 2. The first three columns refer to 2009, whereas the last two columns show figures for the entire period.

²⁷ The strategy of the Italian central government was to reduce the numerical parameter μ : from 25 per cent in 2004 (as mentioned in the previous footnote) it became 4 per cent in 2014.

²⁸ The official number of Italian municipalities changed year by year, basically due to splits or mergers among municipalities.

Table 2 General characteristics of the municipalities included in the dataset

(Population classes)	Municipalities (2009)	Population -2009	Average popul. (2009)	Total observations (1999-2009)	% Total observations (1999-2009)
0- 3000	4.291	5.721.365	1.333	49.026	56%
3000-5000	1.158	4.502.974	3.889	12.838	15%
5000-10.000	1.191	8.452.899	7.097	12.924	15%
10.000 50.000	1.056	20.500.000	19.413	10.962	13%
> 50.000	149	20.900.000	140.268	1.561	2%
Total	7.845	60.077.238	7.658	87.311	100%

Source: Authors' calculations

As already discussed, not all municipalities were constrained by the DSP rules, because of the size threshold applied, which was modified twice (Table 1). Since 2005, only municipalities with more than 3,000 residents have been subject to the DSP rules: Table 2 shows that the introduction of this threshold implies the exclusion of more than 50 per cent of the municipalities in our dataset from the fiscal constraint. As previously pointed out, the definitions of the specific balance sheet items to be considered in Revenue (R) and Expenditure (E) that are relevant to DSP targets are extremely detailed and variable (i.e. they changed from one year to another). In some cases, we cannot find the required information in the dataset to precisely compute the R_t or E_t aggregates, and therefore the DSP targets are necessarily approximate.²⁹ In other cases, a lack of specific information or missing or misreported data were more severe and made it

²⁹ Besides interest and capital expenditure until 2005, exemptions include a number of the least discretionary budget items, such as conditional transfers and extraordinary expenditures. The same approximation was used in Brugnano *et al.* 2009.

impossible to calculate R_t or E_t for a single municipality, forcing us to consider the DSPt variable missing for that year.³⁰

Based on these calculations, Table 3 shows the time evolution of debt and investment by DSP compliance position,³¹ only for municipalities permanently subject to DSP regulation and for which calculation of the DSP target was possible.³²

The descriptive statistics show that the DSP has apparently not influenced the debt and investment behaviour of municipalities as theoretically expected.³³ The level of per capita debt doubled in the period and no clear difference can be found according to DSP position. On the contrary, investment decreased markedly from 2005, when capital expenses were included in the DSP; the reduction is much more sizeable for compliant municipalities. Table 3 shows that in 2009 the median investment was only around 80 per cent of the 1999 level: this trend is even more impressive considering that these figures are nominal values and have not been adjusted for inflation.

Table 3
Municipalities constantly under DSP regime: Debt and investment indexes (1999=100, median values)

DSP compliant	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	Per capita Debt										
No	100	113	125	123	127	140	152	166	226	196	204
Yes	100	95	99	112	125	133	135	127	188	213	192
	Per capita Investment										
No	100	109	126	142	161	158	178	158	111	113	89
Yes	100	103	102	123	154	168	108	87	98	88	76

Source: Authors' calculations.

³⁰ Missing values are more numerous when $\alpha=1$ and $\beta=0$ and $\delta=0$ (see formula 3) because in this case computing the DSP target requires detailed data on both B^{target} and E^{target} .

³¹ The rate of compliance varies from 21 per cent in 2006 to 70 per cent in 2009.

³² As the number of municipalities subject to DSP changes considerably year by year (due to the changing threshold and to data availability), we consider only those municipalities with more than 5000 inhabitants. Index numbers have been calculated on median values in order to stress the time trend.

³³ A similar result was found by Broyles *et al.* (2009) for 17 member countries of the OECD.

The borrowing limit through the interest cap (i.e. line c) of equation 4) was perceived as not binding by the majority of municipalities during the period observed. On the one hand, the numerical ceiling was set above any reasonable³⁴ value and the outcome was a slack constraint; on the other hand, as already mentioned, due to the “euro dividend” in the period under observation municipalities benefited from decreasing interest rates, finding it even easier to comply with this rule. Table 4 shows the median values of the average cost of debt³⁵ and of the distance to the interest cap.³⁶ The implicit cost of debt was 7.1 per cent in 1999 and it halved in the following years, reaching 3.2 per cent in 2009; the distance to the interest cap was 18.5 percentage points in 1999 (when the interest cap was 25 per cent) and was around 10 percentage points in 2009 (when the interest cap was reduced to 15 per cent), showing that, on average, municipalities were not actually constrained by this rule. Indeed, the last row of the table shows that only a few municipalities (less than 10 per cent over the whole period) exhibited interest-to-revenue ratios in excess of the legal numerical values. The presence of this “redundant rule” appears even more inefficient as several other rules (the main one being the constitutional golden rule) and sanctions regulated debt issuance.

³⁴See footnote 26 for the numerical thresholds in 1999-2009. To strengthen the control on general government public debt, the budget bill for 2012 reduced the threshold to 8 percent for 2012, 6 percent for 2013, and 4 percent for 2014.

³⁵The average cost of debt is computed as an implicit interest rate: the ratio of interest expenses to outstanding debt.

³⁶The distance to the borrowing limit is computed as the difference between the legal ceiling (25 per cent for 1999 and 15 per cent for 2009) and the interest-to-revenues ratio. The higher this value, the greater the possibility of using debt finance.

Table 4
Municipalities under DSP regime: Cost of debt, Distance to the interest cap and Share of non-compliant municipalities (*Interest rate and Distance shown as median values*)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Implicit cost of debt	7.1	6.4	5.9	5.7	5.4	5.0	5.0	4.7	3.2	3.3	3.2
Distance to interest cap	18.5	19.2	19.7	19.9	20.1	20.1	7.3	7.3	10.4	10.5	10.7
% of non compliant mun.	4.4	2.0	1.1	1.6	3.1	1.1	5.8	7.1	5.4	5.6	4.5

Source: Authors' calculations.

The results from the aggregate descriptive statistics depict an unsatisfactory picture of the fiscal coordination among levels of government in Italy, where the budget constraints through the DSP and the borrowing limits (the interest cap and the golden rule) are set and managed separately. Moreover, they show that in the period observed, despite the joint effect of the two sets of rules, there was a clear path of increasing current expenditures, declining capital expenditures, and rising local and general debt (Figure 2 and Table 3).

These apparently inconsistent trends need to be empirically investigated taking into account the factors most relevant to investment and finance decisions at the local level and the impact of possible interaction among the different fiscal rules.

4.2 Estimations

In order to assess the efficacy of budget and debt constraints during the period observed we perform panel estimations³⁷ on our data set, focusing on the effects of the rules on both debt and investment patterns.

For the debt issue, we use as dependent variable the first difference of municipalities' per capita level of debt. As explanatory variables we use: per capita

³⁷For all the reasons previously illustrated regarding difficulties in calculating the DPS_t dummy variable, we run the estimations on unbalanced panels.

investment, as one of the main drivers (being also representative of the golden rule); two proxies related to the other two sets of fiscal rules (DSP and interest cap); and other indicators. Due to the potential endogeneity between debt and investment, we employ the instrumental variable method, choosing per capita central government transfers as an instrument for investment.³⁸ Apart from this instrument, the equation we estimate can be sketched as follows:

$$\Delta D_{it} = a_0 + a_1 \text{INV}_{it} + a_2 \text{DSP}_{it-1} + a_3 \text{LD}_{it} + a_4 \text{IR}_{it} + a_5 \text{SB}_{2005} + u_{it},$$

(5)

where D_{it} is the per capita debt for municipality i at time t and INV is the per capita investment expenditure at time t . As for budget rules, DSP is the dummy indicator for compliance with the target required by the Domestic Stability Pact with a time lag; LD is a variable indicating the degree of stringency of the interest cap, i.e. the distance between the legal ceiling (μ) and the actual interest-to-current-revenue ratio (shown in Table 4). We also consider as explanatory variables the implicit cost of debt IR and a structural break for 2005, when investments became relevant for DSP. The Hausman test³⁹ suggests the use of fixed-effect estimation, and therefore time-invariant municipal characteristics such as density of population or location in different geographical areas are captured by fixed effects.

Table 5 shows the regression results for the municipalities under the DSP regime (left-hand side) and for all municipalities in the dataset (right-hand side).

³⁸ Central government transfers are set mainly as conditional to infrastructure investment and therefore they are highly correlated with investment, the endogenous variable. Because of the different timing and the presence of multiple causes of debt variation, they turn out to be uncorrelated with the dependent variable (for which it is a complementary source of investment finance).

³⁹The chi squared in the Hausman test is 92.25, with a $P \leq 0.001$.

Table 5
Panel estimation of first difference in debt per capita determinants

Dependent variable Δ (Debt/population)

	Constrained by DSP			All Municipalities		
	Coef.	Std. Err.	P> z	Coef.	Std. Err.	P> z
Per capita Invest.	0.040	0.010	0.000	0.030	0.010	0.000
DSP (-1)	-22.770	4.330	0.000	-	-	-
LD	1251.300	138.130	0.000	2428.860	114.340	0.000
Str. Break 2005	165.510	15.850	0.000	345.790	12.710	0.000
Implicit cost of debt	-2.990	0.440	0.000	-1.990	0.250	0.000
Constant	-208.870	27.640	0.000	-432.410	22.500	0.000
N. of observ.	31765			72707		
Wald Chi2	935.59; p \leq 0.001			3668.41; p \leq 0.001		

Per capita Invest. instrumented by per capita central government transfer

Source: Authors' calculations.

As expected, the annual increase in the per capita debt level is bigger the greater per capita investment is and the lower the implicit cost of debt IR. On the other hand, per capita debt is lower for those municipalities which were compliant with the DSP in the previous year: this result can be interpreted as a sign of a positive influence of fiscal regulation or as the effect of stringency of the DSP sanction (see Table 1). A dummy for breaching the interest cap (not shown in the regression) proves to not be statistically significant since, as previously illustrated, the threshold was stringent for less than 10 per cent of municipalities. However, the distance between the numerical ceiling and the actual interest-to-revenue ratio, measured by LD, shows up with a positive and significant coefficient, confirming that the higher the gap (and therefore the lower interest expenses are) the greater the room for increasing the debt level. Lastly, the structural break is statistically significant and positive, meaning that, all other determinants being equal, after 2005 there was a general rise in debt level for all municipalities, despite the fact that we would expect an opposite result from the inclusion of investment in the DSP target. The right-hand section of the above table shows the

same regression for all the municipalities included in the dataset, including small municipalities not constrained by the DSP. It is worth stressing that the coefficient signs and significances remain substantially the same.

To fully assess the performance of the fiscal rules we also investigate the impact, if any, on municipality investment expenditure. In this case we use the annual per capita capital expenditure of the municipality as the dependent variable and the DSP rule among the other independent variables:

$$INV_{it} = a_0 + a_1 DSP_{it-1} + a_2 IR_{it} + a_3 SB_{2005} + a_4 FA_{it} + a_5 AI_{it} + u_{it}$$

(6)

In equation 6, INV is per capita capital investment; DSP is the Domestic Stability Pact proxy; IR is the cost of debt; SB is a dummy for the structural break from including investment in the DSP target in 2005, computed as in equation (5); FA is a tax autonomy indicator, computed as the ratio of tax revenues on total revenues; and AI is per capita income, approximated by the average taxable income from Tax Authority data.⁴⁰ As in the previous case, the Hausman test suggests fixed effect estimation⁴¹.

Table 6 shows the regression results for the municipalities under the DSP regime (left-hand side) and for all municipalities in the dataset (right-hand side). The Domestic Stability Pact exhibits a clear negative impact on investments, which can be traced from the negative coefficients of the DSP and SB₂₀₀₅ variables. The cost of debt has the expected negative sign but is not statistically significant: for constrained municipalities, investment decisions appear to be driven primarily by the DSP rule. Per capita income has the expected positive sign, whereas the fiscal

⁴⁰ This is an approximation: the personal income tax base in Italy substantially excludes financial incomes.

⁴¹ The chi squared in the Hausman test is 961.08, with a P≤0.001.

autonomy indicator has a negative sign, which appears counterintuitive. In our opinion, this is a symptom of the difficulties experienced by local policymakers in dealing with increasing responsibility within the process of fiscal federalism. The sign can be interpreted as the effect of budget cuts, which also concerned intergovernmental transfers earmarked for investment expenditures: local politicians seem to have used non-conditional fiscal revenue more to finance current expenditure (less squeezable in the short run and characterized by higher political rents) than investments, the political profits from which can be gained by future administrations.

Table 6
Panel estimation of Investment per capita determinants, fixed effects

Dependent variable: per capita investment (Investment/population)

	Constrained by DSP			All Municipalities		
	Coeff.	Std. Err.	P> z	Coeff.	Std. Err.	P> z
DSP (-1)	-23.22	4.04	0.000	-	-	-
Implicit cost of debt	-0.52	0.40	0.200	-0.44	0.23	0.056
Str. Break 2005	-83.07	5.74	0.000	-117.17	4.90	0.000
Tax autonomy	-4.24	1.47	0.003	-35.04	2.30	0.000
Per capita income	0.11	0.00	0.000	0.03	0.00	0.000
Constant	238.3	16.75	0.000	167.95	12.48	0.000
N. of observ.	30.960			78.490		
F	9.92; p≤0.001			295.29; p≤0.001		

Source: Authors' calculations.

As in the previous estimation, the right-hand section of the table shows results for the same regression run on all the municipalities included in the dataset: once again the coefficient signs and significances remain substantially identical, with the exception of debt cost, which in this regression becomes significant at the 10 per cent level.

Notwithstanding the aforementioned superiority of fixed effects estimators, we also decide to run a random effect estimation as a way to check the structural characteristics that are relevant to public investment by Italian municipalities.

Table 7 shows that the signs and coefficients of the variables included in the fixed effect estimation are almost identical; moreover, some specific characteristics, such as geographical location (AREA, with increasing values from north to south), municipality size (SIZE representing population classes) and whether municipalities belong to special regime regions (SR, dummy variable) appear useful in explaining public investment by local governments. In more detail, economies of scale in capital expenditure are confirmed by the negative sign on local government size. Greater capital expenditure for municipalities belonging to Special Statute Regions (with access to more financial resources) and for those located in southern regions also show up in the data.⁴² Urban sprawl (URBAN AREA, computed as the proportion of urban areas in the municipality) does not seem to have any impact.

We also consider the income level of the municipalities, defined as before, but it does not add any explicative power, probably because the AREA variable captures most of the variability in per capita income. Lastly, we include a political dummy to single out municipalities belonging to provinces usually voting for the Lega Nord party,⁴³ a political party fostering increasing local autonomy in the northern area of the country. The regressions show that this dummy can be considered to have a positive and statistically significant sign only when all municipalities – meaning also the small ones – are taken into account. This effect probably captures the high correlation between AREA, SIZE, and the political preferences in one of the biggest regions, Lombardy, which is situated in the North, where Lega Nord is particularly rooted, and is characterized by a high number of small municipalities.

⁴² The roles of geographical location and Special Statute Region in Italy are confirmed by Commissione Tecnica per la Finanza Pubblica (2007).

⁴³ The role of the Lega Nord party (Northern League party) in Italian national and local politics has been widely studied under different perspectives. See, among others, Barbieri (2012) and Keating and Wilson (2010).

Table 7
Panel estimation of Investment per capita determinants, random effects

Dependent variable: per capita investment (Investment/population)

	Constrained by DSP			All Municipalities		
	Coef.	Std. Err.	P> z	Coef.	Std. Err.	P> z
DSP (-1)	-22.670	3.920	0.000	-	-	-
Implicit Cost of debt	-0.450	0.370	0.230	-0.434	0.231	0.060
Str. Break 2005	-60.170	5.480	0.000	-87.703	4.748	0.000
Tax autonomy	-5.870	1.460	0.000	-38.849	2.291	0.000
SR	92.800	17.200	0.000	236.704	14.636	0.000
Size	-88.110	4.700	0.000	-151.869	3.995	0.000
Urban area	0.000	0.000	0.415	0.000	0.000	0.848
Geographical area	27.420	7.360	0.000	71.279	6.285	0.000
Lega Nord party	26.420	18.510	0.154	108.697	16.257	0.000
Per capita income	0.005	0.001	0.000	0.019	0.001	0.000
Constant	530.560	21.170	0.000	397.871	18.758	0.000
N. of observ.	30.960			78.487		
Wald Chi2	664.05; p≤0.001			2599.99; p≤0.001		

Source: Authors' calculations.

Summarizing the results, we notice an increase in debt level (as shown in table 2,) and a decrease in investment expenditure. Considering that, in principle, debt can increase only to finance investment, how can these two conflicting trends be rationalized? The DSP rule seems to have a positive effect – i.e. a reducing effect – on local debt. The interest cap, on the other hand, appears little effective: the empirical evidence shows that it is unsuccessful in contrasting the increasing trend in debt, although it is more capable of slowing down this trend the nearer the municipality is to the legal ceiling. The DSP has a depressing effect on investment, which is enhanced after the inclusion of investment in the DSP target in 2005, as is shown by the sign of the structural break dummy. However, the structural dummy has the opposite impact on debt issuance, creating a little puzzle.

To interpret this apparent puzzle, two considerations must be borne in mind. The first is an issue which has been raised by local administrations and concerns the

time misalignment between debt contracts and investment expenditure, and therefore the different time profiles of the implied revenue and expenditure flows in the computation of the DSP target. In order to complete the administrative procedures for an investment project, financial funds must be available in advance and therefore a debt contract must be signed; after this step, the budgetary position of the local government may have changed and the DSP may be binding, preventing implementation of the project. In other words, there is a problem in the time consistency of the rule and, although a municipality may have collected the borrowing resources to realize an investment, the fiscal rule does not allow it to spend. This issue is being stressed by the municipality associations nowadays because of the need to sustain investment to counteract the economic crisis. A second consideration is related to the temporary relaxation of the debt constraints in the period observed, in particular the role played by derivative contracts. The difficulties in regulating OTC financial instruments may have created inefficient incentives, exacerbating moral hazard behaviours and boosting the lack of transparency of local government budgets and debt levels. In particular, considering up-front from derivative contracts as current revenue in some years may have helped compliance with the DSP, but at the cost of higher future debt levels. Generally speaking, extreme accounting practices or improper use of derivative contracts can make municipality budget ratios very hard to interpret.

4. Conclusions

European fiscal rules address general government deficit and debt as indicators of the soundness and sustainability of public accounts and are explicitly built with

reference to medium-term frameworks. Although for many years the emphasis was mainly on deficits, recently the control of public debts has been strengthened. The European Fiscal rules, by focusing on the consolidated general government sector, raise problems of coordination between the different levels of government, and this led to the adoption of fiscal rules at the national level by most Member States.

In Italy, coordination between fiscal tiers has been regulated by the Domestic Stability Pact (DSP) since 1999. The DSP does not rule debt financing directly, although a few characteristics of the pact may have conditioned local governments in their debt management. At the same time, local debt is still subject to both a *hard* golden rule and to a separate pre-existing rule on new borrowing. The former was introduced into the Constitutional Law in 2001, and the latter is a limit to the issuance of new debt, provided by a numerical ceiling on the ratio of interest expenditure to current revenues in force for a very long time. Our analysis has shown a fall in capital expenditures and an upward trend in current expenditures and local debt, despite the joint effect of the three constraints (the DSP, the hard golden rule and the borrowing limit).

More precisely, based on data from Italian municipality budgets, descriptive statistics show no significant difference in the median values of debt and investment between municipalities that are compliant and those that are non-compliant with the DSP. However, panel estimation shows that surplus or deficit positions with respect to the Domestic Stability Pact of the previous year do influence the debt pattern, probably due to indirect effects of the DSP sanction banning borrowing for non-complaint local governments, introduced in 2005.

As for the interest cap, although descriptive statistics show that municipalities have been very distant from the legal threshold, the results from the panel estimation highlight that the rule at least slowed down the increasing trend in debt for municipalities near to the interest cap. In other words, other things being equal, the increase in debt is higher for those municipalities that are more distant from the numerical ceiling on the interest-to-revenue ratio.

Another relevant result, partly contributing to explaining the debt pattern, is that the DSP proves to negatively influence the investment behaviour of local governments. This framework is consistent with the conclusion that the DSP has been useful in constraining local government expenditure in the very short run, but it has not provided an efficient framework for the medium- and long-run use and programming of public resources.

To sum up, fiscal rules does not appear to induce fiscal discipline in municipalities but, on the contrary, may be held responsible for a problematic decrease in public investment after capital expenditure was included among the budget items contributing to the DSP target. The observed increase in local debt (inconsistent, in principle, with a decrease in investment) points to a lack of actual stringency of the borrowing constraints and to a possible time inconsistency in the rule design. It may also indicate that debt has probably financed current expenditure and therefore window-dressing practices have been exploited to comply with the fiscal rules. The use of derivatives as a way to change the inter-temporal profile of debt and interest expenses may have played some relevant role.

This unsatisfactory performance of the local fiscal framework is certainly due to the high instability of the rules (the Domestic Stability Pact has changed almost every year) but also to many other factors, such as the lack of coordination

between budget constraints and borrowing limits and the winding path towards fiscal federalism in Italy. In other words, it appears that the decentralization process in Italy has not found an adequate solution yet. On the one hand, local administrations are not equipped to deal with the increased financial responsibility and the progressive sophistication of financial markets. On the other hand, central government policy makers have been inconsistent in, devolving fiscal powers to municipalities in principle while at the same time issuing multi-layered regulations to restrain their fiscal autonomy in order to pursue overall public finance control.

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