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Rules, Discretion and Quality of Government: Evidence from Italian Municipalities

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Declaration

This thesis is submitted to the University of Warwick in support of my application for the degree of Doctor of Philosophy in Economics. It has been composed by me and has not been submitted in any previous application for any other degree. I have collected, cleaned and analysed all the data used in this thesis myself.

Abstract

In recent years many countries have introduced fiscal rules with the purpose of reducing the incentives for local governments to accumulate public debt and run deficits. Despite wide adoption, there is not enough evidence about the consequences of fiscal rules for the quality of the political process.

In this PhD dissertation, exploiting panel data on Italian municipalities and an institutional framework which mandates the application of fiscal rules only for municipalities above 5000 inhabitants, I study how fiscal rules affect the quality of the political process. In particular, in Chapter 1, using a Difference-in-Discontinuity (Diff-in-Disc) design, I study how fiscal rules affect the quality of the political class, and in particular the level of education of politicians. In Chapter 2, using Regression Discontinuity Design and Propensity-Score Matching, I study whether politicians characterized by different levels of education make different choices in terms of fiscal policies and whether they have different political career goals. Finally, in Chapter 3, I study how political parties can discipline politicians by affecting their career concerns. In particular, using Regression Discontinuity Design, I show that national parties can act as a substitute for fiscal rules in constraining politicians.

Introduction

In the last years several countries have introduced fiscal rules designed to constrain the fiscal behaviour of governments. These are laws that have the aim of limiting the incentives to accumulate public debt and run deficits.

In most cases, fiscal rules are a tool that central governments use to discipline the behaviour of local governments, based on a rationale that fiscal indiscipline at the local level has a negative effect on fiscal discipline at the central level.

As described by Grembi et al. (2016), there are many examples of countries that in recent years have adopted fiscal rules designed to constrain the fiscal behaviour of local governments. Among them, we can find both developed (e.g. Canada, Italy, Spain, Sweden) and developing (e.g. Argentina, Brazil, Mexico, China) countries. Perhaps, the most famous example of fiscal rules is the European Stability Pact, which is a set of rules imposed by the European Union on the member countries.

Despite the recent diffusion, there is no agreement in the economics literature about whether fiscal rules are effective in fostering fiscal stability. In particular, some scholars (Alesina and Perotti, 1996, and Wyplosz, 2012)

argue that, for reasons of lack of commitment, fiscal rules may not work. Besides that, there is little evidence on the consequences of fiscal rules for the quality of government and of the political process. In fact, most of the studies are focused on the effectiveness of fiscal rules in reducing the incentives to accumulate public debt and run deficits (Alesina et al., 1996; Hallerberg and Von Hagen, 1999; Debrun et al., 2008; Poterba, 1994; 1996). Finally, most of the empirical evidence, with the exception of the recent work of Grembi et al. (2016) and Coviello et al. (2016), has been developed through cross-country comparisons. All of this leaves the door open to more research on the effect of fiscal rules on the quality of the political process.

In this PhD dissertation, I study how fiscal rules can directly affect and indirectly interact with the quality of the political process. I use panel data on political, socio-economic and geographical characteristics of all the Italian municipalities for the years 1993 to 2012.

Italian municipalities offer an interesting framework that can be exploited to study how fiscal rules interact with the political process. In fact, as described in more detail below, in 1999 the Italian central government introduced fiscal rules, aimed at reducing the incentives to accumulate debt and run deficits, which initially applied to all Italian municipalities. These rules were introduced under the name "Domestic Stability Pact" (DSP). In 2001, to avoid imposing onerous constraints on small municipalities disadvantaged by economies of scale, the central government removed the fiscal rules for municipalities with less than 5000 inhabitants. This relaxation below the 5000 threshold remained in place until 2013, when the threshold was reduced to

1000.

Thus, the particular framework represented by Italian municipalities can be exploited to analyse how fiscal rules interact with the political process in two ways: 1) in Chapter 1, I study the direct effect of fiscal rules on the quality of the political class; 2) in Chapters 2 and 3, I apply a more indirect approach through which I analyse how the absence or presence of fiscal rules can shape the incentives received by different types of politicians.

Chapter 1 (“Fiscal rules and the selection of politicians: evidence from Italian municipalities”) represents a direct test of the effect of fiscal rules on the quality of the political process. In particular, in this chapter, using data on Italian municipalities and exploiting a Difference-in-Discontinuity (Diff-in-Disc) design, which enables control for an institutionally mandated increase in the wage paid to politicians at the 5000 threshold, I provide the following empirical evidence: 1) I show that the imposition of fiscal rules negatively affects the quality of the political class, and in particular the level of education of politicians; 2) consistent with the idea that competent individuals want to enter the political arena if they are given enough discretion in setting fiscal policies, I demonstrate that the main results are driven by municipalities not burdened by high levels of deficit; 3) I show that the introduction of fiscal rules effectively offsets the positive effect of a wage increase on the selection of politicians.

Thus, the empirical evidence described by Chapter 1 suggests that, while paying politicians high wages may be a good idea since more skilled individuals are attracted by high remuneration, reducing the power and discretion

of a government through the imposition of fiscal rules may have negative consequences on the selection of politicians.

In Chapter 2 (“Do educated politicians matter for fiscal outcomes? Evidence from Italian municipalities”), I study how the absence or presence of fiscal rules can shape, in different ways, the behaviour of politicians with different levels of education. The goal of Chapter 2 is to understand whether politicians with different education levels take different decisions in terms of fiscal policies and whether they follow different political career paths. In particular, the focus is on the comparison between politicians with a college degree and politicians without a degree. The comparison is implemented by distinguishing between municipalities affected by the application of fiscal rules and those not affected by them. The same dataset is used in Chapter 2 and Chapter 1, and the results in Chapter 2 must be read in conjunction with those reported in Chapter 1.

The analysis reported in Chapter 2 is developed with two different methodologies: 1) Regression Discontinuity Design, which compares municipalities in which a candidate with a college degree barely won with municipalities in which a candidate with a degree barely lost; 2) Propensity-Score Matching implemented using the subset of tight mixed electoral competitions between graduate and non-graduate candidates.

The main results indicate that graduate mayors elected in municipalities not constrained by fiscal rules tend to run higher deficits compared to mayors without a college degree. These higher deficits seem to be produced by reducing revenues more than expenditures. On the other hand, it was not possible

to find any significant difference in terms of fiscal policies for municipalities constrained by fiscal rules (i.e. municipalities above 5000).

In Chapter 2 I show that graduate mayors seem to be more career oriented, as I find that they have a higher probability of being elected at the provincial level (i.e. the level of government immediately above municipalities). This may indicate that they run higher deficits in order to pursue their career goals.

Therefore, the empirical evidence described in Chapter 2 indicates that more educated politicians have stronger preferences for higher deficits and are more career oriented. This may explain why, as reported in Chapter 1, more educated individuals are less likely to enter politics in institutional contexts constrained by fiscal rules.

In Chapter 3 (“Do national political parties matter? Evidence from Italian municipalities”), I study how, in municipalities not constrained by fiscal rules, political parties can discipline politicians by affecting their career prospects. In particular, in Chapter 3, I exploit the proliferation in Italian municipalities of local movements (“Civic Lists”) completely independent from political parties, and I use them as a comparison group for party-affiliated politicians to test whether political parties discipline politicians by affecting their career concerns. In practice, using a Regression Discontinuity Design (RDD) which compares municipalities where party-affiliated mayors barely won with those where they barely lost, I show that party-affiliated mayors are more fiscally responsible: they run lower deficits, accumulate less debt and reduce expenditures. As anticipated above, the effect found in this final chapter is significant

only for municipalities not constrained by fiscal rules. This suggests that national parties can act as a substitute for fiscal rules in constraining politicians.

Besides that, in Chapter 3, I also provide evidence that the fiscal discipline of party-affiliated politicians is linked to better career prospects. In fact, mayors affiliated to national parties have a higher probability of being re-elected for a second term and higher chances of being promoted to higher levels of government. Finally, I show that the results are not driven by political orientation, alignment with the central government, the presence of criminal organizations nor unobserved political ability.

In conclusion, the main takeaways of this PhD dissertation about the interaction of fiscal rules with the quality of the political process are as follows. First, as described in Chapter 1, fiscal rules seem to have a negative effect on the selection of more educated individuals. This is consistent with the empirical evidence described in Chapter 2, which indicates that more educated politicians have stronger preferences for higher deficits. This represents a potential drawback of fiscal rules, which make holding political office less attractive for more educated individuals.

Second, the results of Chapters 1 and 2 suggest that fiscal rules have two separate effects on fiscal policies: 1) a direct effect, as on average municipalities affected by fiscal rules run lower deficits (see empirical analysis by Grembi et al., 2016); and 2) an indirect effect, as fiscal rules discourage the entry of politicians with stronger preferences for higher deficits.

Therefore, Chapters 1 and 2 indicate that fiscal rules have both positive and negative consequences. On the positive side, they foster fiscal stabil-

ity through both incentives and selection. On the negative side, fiscal rules discourage the entry of more educated individuals. These conclusions leave the door open for future research. In particular, it would be interesting to complete this analysis with data on the production of public goods.

Finally, national political parties, through their effect on the political careers of politicians, may be an institution which can substitute for fiscal rules in constraining politicians. Hence, in those contexts where political parties are strong or particularly well connected to higher levels of government, it may be better to not impose fiscal rules, as they may simply be a useless burden which reduces discretion and flexibility enjoyed by local governments.

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Chapter 1

Fiscal rules and the selection of politicians: evidence from Italian municipalities

Abstract

Many countries have recently introduced fiscal rules to constrain governments' fiscal policies and action. Despite the wide adoption, there is little evidence on the consequences of fiscal rules for the quality of government. I use data from Italian municipalities to study how fiscal rules affect the selection of politicians. In 1999, the Italian government applied fiscal rules to all municipalities, and in 2001 it removed them for municipalities with less than 5000 inhabitants. Using a Difference-in-Discontinuity (Diff-in-Disc) design, which enables control for an institutionally mandated increase in the wage paid to politicians at the 5000-inhabitant threshold, I provide the following empirical evidence: 1) fiscal rules negatively affect the quality of politicians, and in particular their level of education; 2) consistent with the idea that competent individuals enter politics if they are given enough discretion, the effect is driven by municipalities with low deficits; 3) fiscal rules offset the

positive effect of the wage increase on the selection of politicians.

1.1 Introduction

In this chapter, I study how fiscal rules designed to constrain the fiscal policies decided by a government can affect the selection of politicians. In particular, using data on Italian municipalities, I provide the following empirical evidence: 1) I show that the imposition of fiscal rules, aimed at reducing incentives to accumulate debt and run deficits, has a negative effect on the quality of politicians; 2) the effect is stronger in municipalities with low levels of past deficit, a result that is consistent with a framework in which competent individuals enter politics if they can enjoy a sufficient level of discretion; 3) I demonstrate that the introduction of fiscal rules effectively offsets the positive selection effect of the wage rise that operates across the sample of municipalities studied.

One of the goals of the political economy literature is to study how to improve the political process in ways that generate benefits for voters. Historically, the focus of the literature has been on how to give the right incentives to politicians (Barro, 1973; Ferejohn, 1986). In particular, the literature, under the assumption that politicians are all self-interested, has put a lot of attention on re-election as a disciplining device. However, as noted by Besley (2005), assuming that all politicians are self-interested implies that voters can replace bad politicians with others who are just as bad.

For this reason, in recent years the political economy literature has started

to study the different mechanisms through which politicians are selected (Besley, 2005). The main goal of this recent literature is to study how institutions affect the ex-ante quality of the political class, and in particular to understand which institutions succeed in attracting the most competent individuals into the political arena.

From a theoretical point of view, this has been made possible by the introduction of the citizen-candidate framework developed by Besley and Coate (1997) and Osborne and Slivinski (1996), who have started to treat political candidates as endogenous. On the other side, the empirical literature has provided evidence about how different types of institutions can affect the quality of individuals who enter in politics. Among the institutions studied we can find: 1) the wage paid to politicians (Besley, 2004; Ferraz and Finan, 2011; Gagliarducci and Nannicini, 2013; Kotakorpi and Poutvaara, 2011; Dal Bo et al., 2013; Fisman et al., 2013; Braendle, 2015); 2) the role of outside earnings (Gagliarducci et al., 2010; Fedele and Naticchioni, 2013; Grossman and Hanlon, 2013); 3) the role of monitoring institutions (Grossman and Hanlon, 2013); 4) grants from higher levels of government and the level of fiscal autonomy (Brollo et al., 2013; Bordignon et al., 2015); 5) electoral rules (Beath et al., 2015); 6) gender quotas (Baltrunaite et al., 2014) and 7) criminal organizations (Daniele and Geys, 2015). As far as I know, no study to date has investigated the potential effect of fiscal rules on the selection of politicians.

Fiscal rules are rules that constrain fiscal policies. In particular, National central governments generally use fiscal rules to discipline the fiscal behaviour of local governments, to reduce their incentives to accumulate debt and run

deficits. The rationale for fiscal rules is that fiscal indiscipline at the local level represents a negative externality for the rest of the country. This is particularly the case in decentralized countries in which the local governments are financed through transfers from higher levels of governments, and local governments may not entirely internalize the cost of spending.

As reported by Grembi et al. (2016), in recent years many countries have adopted rules to constrain the fiscal policies of local governments. These include Argentina, Austria, Brazil, Canada, China, Colombia, Czech Republic, Denmark, Italy, Mexico, Poland, Spain, Sweden, and Turkey. Maybe the most famous rule is the European Stability Pact, which was introduced in 1997 by the European Union and applied on member countries. In spite of the wide use of fiscal rules, there is no definitive evidence in the economics literature about whether they foster fiscal stability. In fact, some studies (Alesina and Perotti, 1996, and Wyplosz, 2012) indicate that for reasons of commitment, fiscal rules may not work. From this point of view, the most recent advancement in the literature is Grembi et al. (2016), who, using data on Italian municipalities, have shown that fiscal rules can be effective in reducing the deficit run by local governments. Another recent paper is Coviello et al. (2016), who study the impact of fiscal rules on public infrastructure expenditures and the size of firms. As already mentioned, I am not aware of any study of the effect of fiscal rules on the selection of politicians.

The claim of this chapter is that the imposition of fiscal rules on local governments may have a negative effect on the ex-ante quality of the political class. The idea behind this claim is that competent and skilled individuals

may find it less attractive to enter the political arena if the power, the flexibility and the discretion of a government are constrained by the fiscal rules. In fact, fiscal rules, while they may be effective in decreasing the incentives to accumulate debt and run deficits, may reduce the flexibility enjoyed by a local government in setting its own fiscal policies. This negative effect on the selection of politicians may be even stronger if competent and skilled individuals enter the political arena with the goal of pursuing a political career (i.e. they are more career oriented compared to less competent individuals), as politicians constrained by fiscal rules may find it more difficult to reach this goal.

In this chapter, I directly investigate whether the introduction of fiscal rules in Italian municipalities has negatively affected the level of human capital of the political class. The results of this chapter must be read in connection with those found in Chapter 2, in which I show that more competent mayors elected in Italian municipalities not constrained by fiscal rules tend to run higher deficits and to be more career oriented, compared to less competent ones.¹

The main measure of politicians' competence used in this chapter is their level of education, which is an indicator of the ex-ante quality of the political class that has been widely used in the literature on the selection of politicians (e.g., Gagliarducci and Nannicini, 2013; Galasso and Nannicini, 2011). In

¹In particular, in Chapter 2 I show that mayors with a college degree elected in municipalities not constrained by fiscal rules, compared to non-graduate mayors, tend to run higher deficits, reducing revenues more than expenditures. At the same time, in Chapter 2 I demonstrate that graduate mayors have a higher probability of being elected at the provincial level, which is the level of government immediately above the municipal level.

particular, competence is measured by both average years of education and the proportion of politicians with a college degree. I provide evidence on other individual characteristics of the politicians, such as gender, age, employment status and political experience.

The empirical analysis uses data on Italian municipalities from 1993 to 2012. Italian municipalities are an interesting framework for the empirical question investigated in this chapter. In fact, as described in Section 1.2, in 1999 the Italian government introduced fiscal rules, with the goal of limiting the incentives to accumulate debt and run deficits. These rules initially applied to all municipalities and were introduced under the name of "Domestic Stability Pact" (DSP). In 2001, the central government removed the rules for all municipalities with less than 5000 inhabitants. This was done to avoid imposing additional constraints on municipalities disadvantaged by economies of scale. This relaxation remained in place until 2013, when the cutoff was moved from 5000 to 1000.

This institutional framework would be ideal for a Regression Discontinuity Design, if fiscal rules were the only policy that changes at the 5000 threshold. However, as described by Gagliarducci and Nannicini (2013) and Grembi et al. (2016), at the same cut-off there is a sharp increase in the wage paid to the mayor and the municipal ministers, based on a policy introduced by the Italian government in the 1960s. This represents a confounding policy, as Gagliarducci and Nannicini (2013), using data on Italian municipalities between 1993 and 2001, have already shown that the wage increase at 5000 affects the selection of politicians attracting more educated individuals into

politics. For this reason, following Grembi et al. (2016), I exploit the 2001 removal of fiscal rules for municipalities below 5000 to estimate a Difference-in-Discontinuity (*Diff-in-Disc*) model, which allows estimation of the effect of fiscal rules on political selection separately from that of the wage increase.

The main results of this chapter show that fiscal rules have a negative effect on the level of education of politicians. In fact, following the 2001 removal of fiscal rules for municipalities below the 5000 threshold, the level of education of politicians increased more in the municipalities just below the threshold, compared to those just above. In particular, the main specification used indicates that, following the 2001 removal of fiscal rules, the percentage of all municipal politicians with a college degree increased by approximately 12 % in municipalities just below the threshold, compared to those just above. This implies a relative rise in the average years of education equal to 0.64 years (i.e. approximately 7.68 months of education). At the same time, the same main specification shows that, following the 2001 relaxation of fiscal rules, the percentage of mayors with a college degree increased by around 27.2 % in the municipalities just below the threshold, compared to those affected by fiscal rules. This implies a relative increase in the average years of education of mayors of about 1.5 years.

It is important to highlight two important features of these main results: 1) in the graphical analysis, I show that the rise in the level of education of politicians in municipalities just below the 5000 threshold is consistent with a general increasing trend in the level of education in both the Italian population and the entire sample of all municipal politicians. Thus, the presence of

fiscal rules offset this increasing trend in education in towns just above 5000 inhabitants, while those just below were free to grow ²; 2) while in the years before 2001, given the higher wage paid above 5000 inhabitants to both the mayors and the municipal ministers (see Gagliarducci and Nannicini, 2013), municipalities just above the threshold were selecting more educated politicians, this difference disappeared after the 2001 removal of fiscal rules for municipalities below the 5000 threshold. This suggests that the imposition of fiscal rules, which reduced the power and the discretion of municipal governments, apparently cancelled the positive effect of the wage increase on the level of education of politicians.

Thus, the empirical evidence described by the main results of this chapter can be seen as an indication that, while paying politicians high wages may be a good idea, as more skilled individuals are attracted by high remunerations, competent persons may decide to enter politics for many different reasons: the empirical results of this chapter suggest that reducing the power and discretion of a government through the imposition of fiscal rules may have a negative effect on the selection of skilled individuals.

The results of the main specification survive a series of robustness checks: first of all, I show that the results in terms of political selection are not driven

²The fact that, as shown in Section 1.5.2, the level of education of politicians was increasing in the entire sample of all Italian municipalities may indicate that the same thing was happening in the bigger municipalities excluded from the analysis of this chapter (i.e. those far away from the 5000 threshold). In fact, this was the case, even though these municipalities were affected by fiscal rules as well. This can be explained by the fact that bigger municipalities, compared to those considered in this chapter, may offer politicians bigger opportunities in terms of visibility and career perspectives. In fact, the spirit of the *Diff-in-Disc* analysis used in this chapter is to compare municipalities just below the 5000 threshold with those just above, which represent a much better and more similar comparison group.

by the imbalance in the level of deficit around the 5000 threshold before and after 2001, due to the fact that municipalities just below the 5000 threshold, if compared to those just above, started to run higher deficits after the 2001 relaxation (see Grembi et al., 2016). To the contrary, I show that the main results are driven by municipalities characterized by a low level of deficit, if not by a surplus. This is consistent with the idea that competent individuals want to enter politics if they are given enough power and discretion, conditions that probably are not guaranteed by those municipalities not constrained by fiscal rules, but characterized by high deficits.

Secondly, through a falsification test implemented using pre-2001 data, I show that municipalities just below and just above the 5000 threshold did not react differently to the introduction of fiscal rules in 1999. This indicates that high-wage and low-wage municipalities did not react differently to the introduction of fiscal rules, excluding a potential interaction between the two policies that may have affected the selection of politicians. This falsification test also provide evidence that the two groups of municipalities around the 5000 threshold were on parallel trends before the 2001 relaxation. Then, I show that other potential outcomes and municipal characteristics are balanced around the 5000 threshold before and after 2001. Finally, I exclude the possibility of manipulative sorting of population figures around the 5000 threshold before and after 2001.

This chapter is connected to two strands of literature. The first is the literature on the selection of politicians described above. As already noted, this literature has produced both theoretical insights (Besley and Coate, 1997;

Osborne and Slivinski, 1996; Caselli and Morelli, 2004) and empirical results (for a survey see Braendle, 2016) about how different types of institutions can affect the ex-ante quality of the political class. The second is the literature about the effectiveness of fiscal rules. Most of the empirical evidence that comes from this literature has been produced through cross-country comparisons (Alesina et al., 1996; Hallerberg and Von Hagen, 1999; Debrun et al., 2008) or using data on U.S. States (Poterba, 1994; 1996). As previously stated, two recent papers have produced significant progresses in the study of fiscal rules using Italian data: 1) Grembi et al. (2016), who, using data on Italian municipalities, have shown that fiscal rules can be effective in reducing the deficit run by local governments; 2) Coviello et al. (2016), who study the impact of fiscal rules on public infrastructure expenditures and the size of firms. As already said, I am not aware of any study on the effect of fiscal rules on the selection of politicians.

The chapter proceeds as follows. Section 1.2 describes the Italian institutional framework. Section 1.3 describes the data used in the chapter. Section 1.4 lays out the empirical strategy used in the chapter. Section 1.5 discusses the empirical results and the validity tests. Section 1.6 concludes.

1.2 Institutional Setting

In Italy there are 8047 municipalities, of which 70.5 % have less than 5000 inhabitants. Municipalities are responsible for a large number of services: municipal police, infrastructure, transport, welfare, housing, environmental

services (e.g. garbage collection), public utilities (e.g. water supply). They manage 10 % of total public expenditures and around 20 % of their revenues come from local taxes, while the rest are made up of discretionary transfers from higher levels of government ³. Among local taxes, the most important are the property tax and a surcharge on the personal income tax of residents. The property tax was introduced in 1993 by Legislative Decree 504/1992, while the surcharge on the personal income tax was introduced in 1999.

Since 1993 (see Law 81 in 1993) mayors of Italian municipalities are directly elected by the voters. In municipalities below 15,000 inhabitants they are elected using a single round plurality rule, while a run-off system is used above the same threshold. Mayors are elected for a term of five years and for a maximum of two consecutive terms, i.e. they face a two-term limit. In the context of the municipal government, mayors are quite powerful, as they can choose and dismiss the ministers that form part of the municipal government. Besides that, if the municipal council wants to dismiss the mayor, new elections must be held.

The main focus of this chapter is on the effect of fiscal rules on the selection of politicians. Fiscal rules for municipal governments were introduced in Italy in 1999, following the introduction of the European Stability and Growth Pact (SGP), which was signed in 1997 by different European countries. Some of the countries that adhered to the SGP, to respect the limits imposed by it,

³In particular transfers come from provinces, regions and the central state. It is important to notice that the level of fiscal dependence on grants from higher levels of government has been historically heterogeneous between the North and the South of Italy. For example, in 2000 municipalities in the North were able to finance 70 % of their budget using local taxes and revenues, while in the South grants covered 60-70 % of total expenditures (Bordignon et al., 2015).

introduced subnational fiscal rules aimed at disciplining local governments, whose budgets form part of the total budget of the State. The subnational rules in Italy were called the "Domestic Stability Pact" (DSP) ⁴.

The DSP is intended to reduce the incentives of local governments to accumulate debt and run deficits. Table 1.1 describes the temporal evolution over time of the target and the limits imposed on the target for the years 1999 to 2010. As we can see, the target has not been constant over time, though, for most the years, the main target has been the balancing of local governments' budgets. The limits imposed on the target have been changing over time: in some years municipalities were asked to apply a cap to the growth of the target with respect to a specific reference year, while in other years municipal governments were asked to cut the target by a specific amount. Besides that, in some years (e.g. 2007) the limits imposed on the target have been differentiated depending on the past fiscal performance of a municipality (i.e. one limit applied to virtuous municipalities, while another was applied to undisciplined towns).

As we can see from Table 1.1, in the first two years (1999-2000) fiscal rules applied to all municipalities, without distinction between small and large populations. In 2001, the central government removed the fiscal rules for all the municipalities below 5000 inhabitants, a decision taken to lift onerous constraints on municipalities disadvantaged by economies of scale. This decision by the central government remained valid until 2013, when the threshold was reduced from 5000 to 1000.

⁴Domestic Stability Pact stays for the Italian *Patto Interno di Stabilita'*. The Law that introduced the DSP in Italy is the number 448, 23 December 1998, article 28.

In this chapter, I study the effect of fiscal rules on the selection of politicians, exploiting the 2001 removal of fiscal rules for municipalities below the 5000 threshold. As explained in Section 1.4, this is done using a Difference-in-Discontinuity approach (Grembi et al., 2016), as the presence of other policies that change at the 5000 threshold does not allow the use of a standard Regression Discontinuity Design model. In fact, as described in Table 1.2, which reports the legislative population thresholds that apply to municipalities with less than 15000 inhabitants, the wages paid to the mayor and the municipal ministers change at the 5000 threshold (Gagliarducci and Nannicini, 2013). This wage increase at the 5000 threshold is a policy that dates to the 1960s (Gagliarducci and Nannicini, 2013). As described in Section 1.4, the Difference-in-Discontinuity approach allows the estimation of the effect of fiscal rules on the selection of politicians while controlling for the wage increase.

Finally, as mentioned in Section 1.1, the claim of this chapter is that the imposition of fiscal rules on local governments makes entering in the political arena less attractive for skilled and competent individuals. This is because skilled individuals may find a job whose power and flexibility are constrained by fiscal rules less attractive. This may be even more true if skilled individuals enter politics with the goal of pursuing a political career (i.e. they are more career oriented), as politicians constrained by fiscal rules may find it more difficult to reach this goal. From this point of view, Italian municipalities offer an interesting framework for studying how the imposition of fiscal rules affects the characteristics of the individuals who enter politics. This

is because Grembi et al. (2016), using yearly data on Italian municipalities and the same reform exploited in this chapter, have shown that fiscal rules have been effective in constraining the fiscal behaviour of the municipal governments. For this reason, I have decided to use this institutional setting to study whether fiscal rules affect the selection of politicians.

1.3 Data

This dataset contains information about all politicians of Italian municipalities with a population between 3000 and 7000 inhabitants elected between 1993 and 2012. It includes observable characteristics of politicians such as gender, age, education level, professional background and past political experience. This information comes from the Italian Ministry of Domestic Affairs.

Information about the municipalities comes from the Italian Statistical Office (Istat), and it includes the following municipal characteristics: 1) geographical information as longitude, latitude, altitude and area; 2) the level of education of the municipal population (e.g. percentage of the population with a college degree); 3) socio-economic indicators such as income per capita; 4) other characteristics of the municipal population such as population density, the percentage of foreign individuals and the percentage of population in different age ranges.

Finally, data on the budget outcomes for the years 2000 to 2012 comes from the Italian Ministry of Domestic Affairs.

1.4 Empirical Strategy

This chapter investigates the effect of fiscal rules on the selection of politicians. In particular, the goal is to study how the imposition of fiscal rules, which constrain the power and the discretion of local governments, affects the types of people that decide to enter politics. The ideal framework to pursue this goal would be represented by an experiment through which fiscal rules are randomly assigned to different districts. However, running this kind of experiment would be unfeasible for financial and institutional reasons.

A close approximation to this experiment exploits an institutional framework that establishes population thresholds through which the assignment of fiscal rules changes. In particular, the presence of a certain population threshold, such that fiscal rules apply for local governments above the threshold but not for those below, enables a Regression Discontinuity Design (RDD) which compares local districts just above the threshold with those just below. Under this design, in the absence of sorting and if other variables and treatments do not change sharply at the specific threshold, the assignment of fiscal rules can be considered *as good as randomly assigned*.

In this chapter I study the effect of fiscal rules on the selection of politicians using data from Italian municipalities. As described in Section 1.2, in 1999 the Italian government introduced fiscal rules aimed at reducing incentives to accumulate debt and run deficits. These rules initially applied to all Italian municipalities. In 2001, the rules were removed for municipalities with less than 5000 inhabitants, and this difference across the 5000 threshold remained valid until 2013.

This institutional setup, in the absence of other policies changing across the 5000 threshold, would be appropriate for an RDD approach applied to the electoral terms between 2001 and 2012. However, as described in Section 1.2, fiscal rules are not the only policy that changes at the 5000 threshold. At the same threshold there is a rise in the wage of the mayor and executive officers, which dates to the 1960s.

This wage increase is a confounding policy which would invalidate the RDD approach, as it would be not possible to disentangle the effect of fiscal rules from that of the wage increase. In fact, Gagliarducci and Nannicini (2013), using data on Italian municipalities between 1993 and 2001, have shown that the wage increase at 5000 affects the selection of politicians, attracting more educated individuals into politics. For these reasons a standard RDD approach is not appropriate in this context.

However, as described by Grembi et al. (2016), the removal of fiscal rules in 2001 for municipalities below 5000 can be exploited to implement a Difference-in-Discontinuity (*Diff-in-Disc*) approach, which allows estimation of the effect of fiscal rules separately from that of the wage increase. The *Diff-in-Disc* approach represents a recent methodology (Lalive, 2008; Campa, 2011; Leonardi and Pica, 2013; Casas-Arce and Saiz, 2015; Grembi et al., 2016) which combines the *pre/post treatment* variation typical of a Difference-in-Differences design with a *just below/just above a threshold* variation that characterizes an RDD approach. In the context of the Italian municipalities, the idea is to combine the change generated by the 2001 reform with the just below/just above 5000 threshold variation. This strategy, under some

assumptions described below, enables estimation of the effect of fiscal rules on the selection of politicians, while controlling for the wage increase, which is constant in real terms over time. Hence, in this framework, the *Diff-in-Disc* approach represents the closest approximation to an experiment through which the assignment of fiscal rules can be considered *as good as randomly assigned*.

In particular, following Grembi et al. (2016), I estimate the following empirical model:

$$Y_{it} = \rho_0 + \rho_1 R_{it} + B_i(\beta_0 + \beta_1 R_{it}) + F_t[\pi_0 + \pi_1 R_{it} + B_i(\phi_0 + \phi_1 R_{it})] + \eta_{it} \quad (1.1)$$

where $R_{it} = P_{it} - P_{5000}$ is the normalized population which measures the distance of municipality i from the 5000 threshold P_{5000} at time t . The population P_{it} comes from the most recent census produced by the Italian Statistical Office (Istat), which is either in 1991 or 2001. The dummy variable B_i is 1 if municipality i is below the 5000 threshold, while F_t is a temporal dummy variable which is equal to 1 starting from the first election a municipality votes after 2001⁵. The temporal dummy variable F_t has been built in this way because the selection of (new) politicians can happen only during electoral years, as it is quite rare that new politicians are selected during the electoral mandate (i.e. far away from elections). The treatment variable is the interaction term between B_i and F_t . Thus, the coefficient of interest is ϕ_0 , which represents the *Diff-in-Disc* estimator and it captures the effect

⁵For a municipality that voted in 1995, 1999, 2004 and 2009 during the years of interest, F_t is equal to 0 for the electoral terms 1995 and 1999 and equal to 1 for the electoral years 2004 and 2009.

of the removal of fiscal rules on the selection of politicians in municipalities below 5000. The dependent variable Y_{it} measures different characteristics of politicians, including education, age, gender, professional background and past political experience.

Following the recent developments of Gelman and Imbens (2014), the coefficient of interest ϕ_0 is estimated by local linear regression (LLR). This means that equation 1.1 is estimated using the subsample of observations which lie in the interval $R_{it} \in [-h, +h]$ around the threshold, where the optimal bandwidth h is calculated following Calonico, Cattaneo, and Titiunik (2014a, 2014b). As an alternative to the CCT optimal bandwidth, I also estimate the model using the smaller bandwidth $h \in [-250, +250]$.

Finally, this identification strategy requires three main assumptions: 1) there must not be manipulative sorting of the running variable R_{it} around the 5000 threshold before and after 2001, such that municipalities must not be able to self-select themselves and decide on which side of the cut-off to stay. This is tested below with a density test (McCrary, 2008) of the population around the 5000 threshold, using both the 1991 and 2001 population censuses. Besides that, following Grembi et al. (2016), I also run the same continuity test on the difference in the densities of the 2001 and 1991 census populations; 2) other potential outcomes and municipal characteristics must be balanced around the 5000 threshold before and after 2001. This is tested below by running model 1.1 using municipal characteristics as dependent variables; 3) municipalities just below and just above the 5000 threshold must be on parallel trends in the periods before the removal of the fiscal rules

in 2001. In particular, as indicated by Grembi et al. (2016), there must be no interaction between fiscal rules and the confounding policy, which is the differential wage paid across the 5000 threshold. This assumption is required in order to demonstrate that high-wage and low-wage municipalities did not react differently to the introduction of fiscal rules. This is tested below with a falsification test using the introduction of fiscal rules in 1999 and running the *Diff-in-Disc* model using pre-2001 data. If this last assumption was valid, this falsification test should deliver a zero effect.

1.5 Results

1.5.1 Sample, descriptive statistics and balance tests

In Italy there are 8,047 municipalities, of which 70.5% have less than 5000 inhabitants. This study uses data on politicians in municipalities with a population between 3000 and 7000 inhabitants elected in the years from 1993 to 2012. The reasons for choosing this sample are: 1) as described in Section 1.2 and Table 1.2, different legislative population thresholds apply to Italian municipalities. This chapter focuses on the 5000 threshold, at which both the wage paid to the mayor and the application of fiscal rules change. At the 3000 threshold there is another change to the wage paid of the mayor, so I have excluded municipalities below this cut-off. Hence, for reasons of symmetry and in order to work with groups of municipalities that share similar characteristics, I have kept all municipalities that, during the years of interest, have a population between 3000 and 7000 inhabitants; 2) in 2013

the Italian government decided to apply the fiscal rules also to municipalities between 1000 and 5000 inhabitants. For this reason I exclude the electoral terms after 2012; 3) 1993 represents a crucial year for the Italian political system. Following a huge corruption scandal called *Mani Pulite* (*Clean Hands*, substantial reforms were made. Among the main changes are an electoral law at the municipal level and the introduction of an important property tax, managed by the mayors (for details see Bordignon, Gamalerio and Turati, 2015). For these reasons I exclude years before 1993. Finally, I retain in the sample all municipalities for which I observe values of the dependent variables both before and after the removal of fiscal rules in 2001.

This leaves me with a sample of 5,927 electoral terms. Among these electoral terms, 1484 terms can be found within the window (-500,+500) inhabitants around the 5000 threshold (793 below and 691 above), 907 (475 below and 432 above) within the range (-300,+300) and 273 (135 below and 138 above) within the range (-100,+100). Table 1.1 reports the summary statistics of these 5,927 electoral terms, distinguishing between municipalities below and municipalities above the 5000 threshold. The first panel of Table 1.1 reports the summary statistics relative to the dependent variables studied in this chapter, i.e. the individual characteristics of municipal politicians. In the second panel of Table 1.1 it is possible to find different characteristics of the municipalities used in the empirical analysis, while the third panel reports the level of education of the municipal population.

As reported in Section 1.4, one of the main assumptions required for the *Diff-in-Disc* estimator to work in the context studied is that other potential

outcomes and municipal characteristics must be balanced around the 5000 threshold before and after 2001. This assumption is required in order to guarantee that the effects found on the selection of politicians are not driven by other observable and/or unobservable factors. This is tested running the *Diff-in-Disc* model 1.1 using municipal characteristics as dependent variables.

The results of this test are reported in the Appendix Table A.2, which is divided into 3 different panels: 1) Panel A reports the balance tests on different measures capturing the level of education of the municipal population. As the main variables of interest of this chapter measure the level of education of politicians, the tests in Panel A have been run to exclude the possibility that municipalities below and above the 5000 threshold have different levels of education in their population. As we can see from Panel A this does not seem to be the case. 2) Panel B of Table A.2 reports the results of different characteristics of the municipal population. As we can see, all the characteristics are balanced around the 5000 threshold before and after 2001, except the variable *past deficit*. This variable represents the deficit per capita that a specific mayor inherits from her predecessor ⁶, and, as we can see, the removal of fiscal rules has a positive effect on it. This result is not surprising, given that Grembi et al. (2016), using yearly data on Italian municipalities and the same reform exploited in this chapter, have already shown that fiscal rules have been effective in reducing the deficit per capita in Italian municipalities. The imbalance in the variable *past deficit* represents

⁶i.e. this is the average level of deficit per capita at the moment in which new election are held, which is when new politicians and new mayors may be chosen. For example, for a municipality that voted in 1999 before the relaxation of fiscal rules and then in 2004 after the reform, *past deficit* in 2004 is measured as the average deficit over the years 1999-2003.

a threat to the identification strategy, because different levels of deficit starting from 2001 below and above the threshold may have a direct effect on the selection of politicians. Thus, *past deficit* represents a potential confounding factor of the effect of fiscal rules on the selection of politicians. As we will see in Subsection 1.5.4, in which I deal directly with this potential threat, this does not seem to be an issue for the identification strategy. 3) Panel C of Table A.2 describes the balance tests for geographical characteristics of the municipalities in the sample of interest. As we can see, all these variables are balanced around the 5000 threshold before and after 2001.

1.5.2 The effect of fiscal rules on the selection of politicians: graphical evidence

The main goal of this chapter is to study how the imposition of fiscal rules aimed at reducing the accumulation of debt affects the characteristics of individuals who decide to enter in politics. In particular, the main focus is on the level of education of politicians ⁷, which is an indicator that has been extensively used in the literature on political selection (Besley, 2005; Besley and Reynal-Querol, 2011; Brollo et al., 2013; Gagliarducci and Nannicini, 2013).

The first simple way to provide empirical evidence of the effect of fiscal rules on political selection is to look at the evolution of the level of education of politicians over time. This is presented in graphs in Figures 1.1 - 1.4.

⁷In Subsection 1.5.5 I study the impact of fiscal rules also on other characteristics of politicians.

Figure 1.1 shows the general trends in the level of education of the entire Italian population. In particular, it shows the evolution over time of the percentage of the entire adult Italian population with a college degree. As we can see, this percentage, while low relative to European standards ⁸, was increasing during the period 1993-2009. As we can observe in Figure 1.2, the same increasing trend can be found among the Italian politicians elected at municipal level. Figure 1.2 contains four graphs: 1) the two top graphs describe the evolution over time of the level of education of mayors elected between 1995 and 2012. During these years both the average years of education and the proportion of mayors with a college degree were increasing; 2) the two bottom graphs report the same behaviour for the average level of education (as measured as average years of education and proportion of graduate politicians) of all Italian politicians elected at municipal level.

Two main features of Figure 1.2 are worth noticing: 1) the average level of education of municipal politicians in Italy seems to be higher than that of the entire Italian population. In fact, between 1993 and 2009, the percentage of the adult Italian population with a college degree increased from about 5 % to about 13 %. The same measure over the same period increased from about 40 % to almost 45 % for mayors, and from about 23 % to about 30 % for all municipal politicians. Hence, Italian politicians seem to have a higher level of education compared to the general population; 2) following the increasing trend over time of the level of education of politicians, it is noteworthy that the biggest jumps happened in electoral years during which

⁸Eurostat in 2015 reported that the percentage of individuals aged 30-34 years old with a college degree in Italy was 23.9 %, against a European average of 37.9 %.

most of the municipalities held municipal elections⁹. This is the case for the electoral years 2004 and 2009, during which more than half of Italian municipalities voted. This is not surprising, as the average level of education of politicians usually only changes when new politicians are elected.

The first graphical evidence of the effect of fiscal rules on the level of education of politicians is reported in Figure 1.3. This figure shows the evolution over time of the dependent variables for the sample of municipalities between 3000 and 7000 inhabitants, which is the sample used in the rest of the chapter for the regression analysis. Besides that, in Figure 1.3, I am splitting the municipalities between those below 5000 inhabitants (the treatment group in the *Diff-in-Disc* analysis) and those above 5000 (the control group). The red vertical line represents the introduction of fiscal rules in 1999, which applied to all municipalities. The green vertical line represents the relaxation of fiscal rules in 2001 for municipalities below the 5000 threshold. As we can see from Figure 1.3, after the 2001 removal of fiscal rules the level of education of the two groups, which was different in the previous years, started to converge. In particular, in the period after 2001 the politicians' level of education increased more in the municipalities not affected by fiscal rules.

It is worth highlighting three important features of Figure 1.3: 1) in the years before the 2001 relaxation, the level of education of both mayors and

⁹As described by Repetto (2016), for historical reasons and because a municipal legislature can experience early interruptions, municipal elections in Italy are staggered. In particular, in Italy is more or less possible to recover 5 groups of municipalities that almost always vote at the same time (unless early interruptions happen). Among these groups, the biggest one, which is composed of more than half of all municipalities, is represented by those towns that in the past voted in the electoral years 1995, 1999, 2004, 2009 and 2014.

the entire pool of elected politicians was much lower in municipalities below the 5000 threshold. This is consistent with the results of Gagliarducci and Nannicini (2013) who, using data on Italian municipalities between 1993 and 2001, have already shown how the wage increase at 5000 affected the selection of politicians, attracting more educated individuals into politics; 2) it is not possible to recover from Figure 1.3 a clear effect on the selection of politicians determined by the introduction of fiscal rules in 1999, which applied to all Italian municipalities ¹⁰. In particular, the introduction of fiscal rules in 1999 did not seem to change the pattern determined in the previous years by the different wage paid across the 5000 threshold ¹¹, as municipalities below 5000 continued to attract less competent individuals until 2001, which represents the real breaking point. This can be explained by the fact that the introduction of fiscal rules was decided only in December 1998 ¹², just before the big municipal elections in June 1999 (during which more than half of the municipalities voted): this represents too short a period of time for fiscal rules to affect candidatures, which were probably already decided in December 1998; 3) while for the entire pool of politicians there is not a complete convergence in the level of education, we can observe one for mayors.

¹⁰There is an apparent decline in the level of education of mayors around 1999 for municipalities below the 5000 threshold. As we will see both in Figure 1.4 and in the regression analysis, this does not seem to be driven by municipalities close the 5000 thresholds, which are those driving the estimated results in the *Diff-in-Disc* analysis. In fact, in the regression analysis, using the *Diff-in-Disc* estimator, I show that municipalities just below and just above the threshold did not react differently to the introduction of fiscal rules in 1999.

¹¹In fact, Gagliarducci and Nannicini (2013) in their analysis of the effect of wage on the selection of politicians include also the electoral years 1999-2001, during which the only difference between municipalities below and above the 5000 threshold was represented by the wage paid to the mayors and the executive officers.

¹²See Law 23 December 1998, no. 448, article 28.

In fact, in the top two graphs of Figure 1.3 both the average years of education and the proportion of graduate mayors of municipalities below 5000 reached the level of those above after 2001. In particular, while in municipalities below 5000 the level of education of politicians after 2001 continued to follow the same increasing trend observed for the entire sample of Italian municipalities, in towns above 5000 both the average years of education and the proportion of graduate mayors remained more or less at the same level ¹³. This seems to indicate that the imposition of fiscal rules, which reduced the power and the discretion of mayors at the municipal level, apparently cancelled the positive effect of the wage increase on the level of education of politicians. This is an indication that, while paying politicians high wages may be a good idea as more skilled individuals are attracted by higher remuneration, competent persons may decide to enter in politics for many different reasons: Figure 1.3 offers some preliminary evidence that reducing the power and discretion of politicians may have a negative effect on the selection of skilled individuals.

The same intuitions from Figure 1.3 are reinforced in Figure 1.4, in which I report the evolution over time of the dependent variables for the sample of municipalities between 4,400 and 5,600 inhabitants. The range closely resembles the optimal bandwidth used in the *Diff-in-Disc* analysis below. As we

¹³The fact that, as shown in Figure 1.2, the level of education of politicians was increasing in the entire sample of municipalities may indicate that the same thing was happening in the bigger municipalities excluded from the analysis of this chapter (i.e. those above 7000 inhabitants). In fact, this was the case, even though these municipalities were affected by fiscal rules as well (results are available upon request). This can be explained by the fact that bigger municipalities, if compared to those used in this chapter, may offer to politicians bigger opportunities in terms of visibility and career perspectives. In fact, the spirit of the *Diff-in-Disc* analysis used in this chapter is to compare municipalities just below the 5000 threshold with those just above, which represent a much better and more similar comparison group.

can see, restricting the sample to treatment and control groups composed by more similar municipalities in terms of population size ¹⁴ further strengthens the results found in Figure 1.3. This is true for both the mayors and the entire pool of municipal politicians. In particular, we can see how for the mayors, while in municipalities below 5000 the level of education continued to follow the same increasing trend observed for the entire sample of municipalities, in towns above the 5000 threshold the level of education decreased after 2001. The big changes in 2004 occur because 2004 sees the biggest municipal election following the 2001 relaxation. This evidence seems to further indicate that reducing the power and the discretion of politicians through the imposition of fiscal rules may have a negative effect on the selection of skilled individuals. Finally, as already said for Figure 1.3, the introduction of fiscal rules in 1999 did not affect differentially the selection of politicians across the 5000 threshold, as municipalities below 5000 continued to attract less competent individuals until 2001, which represents the real breaking point.

1.5.3 The effect of fiscal rules on the selection of politicians: main results

In this subsection, I describe the results of the *Diff-in-Disc* analysis studying the effect of fiscal rules on the selection of politicians. As in the previous subsection, the main focus is on the level of education. The analysis uses two different samples: 1) the entire sample of municipalities between 3000 and

¹⁴As previously described, all the municipal characteristics around the 5000 threshold are balanced. This indicates that municipalities with a similar population size share many other common characteristics.

7000 inhabitants for the electoral terms from 1993 to 2012; 2) the sample of municipalities between 3000 and 7000 inhabitants for the electoral terms from 1999 to 2005.

The first sample is composed of all the municipalities between 3000 and 7000 inhabitants for which I observe values of the dependent variables both before and after the removal of fiscal rules in 2001. I use this sample throughout this chapter.

The second sample is composed of two electoral years for each municipality: one before the relaxation and one after. This second sample has been chosen for the following reasons: 1) to implement an empirical analysis that excludes all the electoral years during which fiscal rules were not in place (i.e. before 1999). In this sample, for all municipalities I can observe at most one electoral year in the period before the reform (i.e. electoral years 1999-2000). Thus, for reasons of symmetry, I limit this sample to just one electoral year immediately after the relaxation of fiscal rules; 2) to run a series of heterogeneity mechanisms analysis and robustness checks which involve the role of the variable *past deficit*, as described in the Subsections 1.5.1 and 1.5.4 and 3) to implement a falsification test for the introduction of fiscal rules in 1999, in order to show that municipalities around the 5000 threshold did not react differently to the introduction of fiscal rules. As described in Subsections 1.5.6, this is done using two electoral years for each municipality: one electoral year before 1999 and one electoral year starting from 1999 (i.e. 1999 or 2000).

Tables 1.4 and 1.5 report the results of the empirical exercise developed

using the entire sample of municipalities between 3000 and 7000 inhabitants for the electoral terms between 1993 and 2012. The dependent variables in these tables capture the level of education of mayors (Table 1.4) and of all municipal politicians (Table 1.5): in Panel A of Table 1.4 the dependent variable is a dummy variable equal to one for mayors with a college degree , while in Panel A of Table 1.5 it is equal to the proportion of politicians with a college degree; in Panel B of Table 1.4 the outcome is years of education of mayors, while in Panel B of Table 1.5 it is the average years of education of all politicians.

In these two tables I apply two different treatment variables: 1) (*Relaxation FR*) is a dummy variable equal to 1 for all the electoral terms starting from 2001, the year in which fiscal rules were removed for municipalities below the 5000 threshold. The interaction between (*Relaxation FR*) and the dummy variable (< 5000) for municipalities with less than 5000 inhabitants represents the variable of interest of my analysis, which is meant to capture the main effect of fiscal rules on the selection of politicians. This is reported in all columns of Tables 1.4 and 1.5; 2) (*Introduction FR*) is a dummy variable equal to one for the electoral years 1999-2000, during which fiscal rules were introduced and were applied to all municipalities. I interact (*Introduction FR*) with the dummy variable (< 5000) in order to study whether municipalities just below and just above the 5000 threshold reacted differently to the initial introduction of fiscal rules.

Besides that, introducing the interaction term (*Introduction FR*)*(< 5000) in the analysis makes it possible to change the baseline years (i.e. years

before 2001, or years before the treatment is introduced) against which the effect of the main treatment ($Relaxation\ FR)^*(< 5000)$ must be interpreted: 1) in the specifications without ($Introduction\ FR)^*(< 5000)$, the baseline electoral years are composed by a mix of years during which fiscal rules did not apply (i.e. electoral years from 1993 to 1998) and years during which fiscal rules applied to all municipalities (i.e. years 1999-2000); 2) in the specifications with ($Introduction\ FR)^*(< 5000)$, the baseline years are all the years 1993-1998, during which fiscal rules were not in place. In practice, introducing the interaction term ($Introduction\ FR)^*(< 5000)$ make it possible to remove the transitory periods 1999-2000, during which fiscal rules applied to all municipalities, from the interpretation of the main variable of interest ($Relaxation\ FR)^*(< 5000)$. This gives an estimated coefficient that describes how much the politicians' level of education changed in municipalities just below the 5000 threshold, compared to those just above, in the transition from a situation with no fiscal rules (years 1993-1998) to a world in which fiscal rules apply only above 5000 (years starting from 2001).

In columns (1)-(2) of Tables 1.4 and 1.5, I report the results obtained using the optimal range calculated following Calonico, Cattaneo, and Titiunik (2014a, 2014b). In columns (3)-(4), I report the results obtained using the smaller bandwidth $h \in [-250, +250]$. As we can see, both Tables 1.4 and 1.5 confirm the results of the graphical analysis described in Subsection 1.5.2: all the estimated coefficients confirm that, following the removal of fiscal rules below the 5000 threshold, the level of education of municipal politicians increased more in the municipalities just below the threshold, compared to those

just above. In particular, the specification with the optimal bandwidth in column (1) of Table 1.4 indicates that, following the removal of fiscal rules, the percentage of mayors with a college degree increased by around 27.2 % in the municipalities just below the threshold, compared to those affected by fiscal rules. This implies an increase in the average years of education of mayors of around one year and a half. The same specification in column (1) of Table 1.5 shows that the percentage of all municipal politicians with a college degree increased by approximately 12 %, with a rise in the average years of education equal to 0.64 years (i.e. approximately 7.68 months of education). As we can notice, the introduction of the interaction term $(Introduction\ FR)^*(< 5000)$ leaves the estimated coefficients of interest almost unchanged. This is due to the fact that municipalities just below and just above the 5000 threshold did not react differently to the introduction of fiscal rules in 1999, given that all the coefficients of $(Introduction\ FR)^*(< 5000)$ are not statistically different from zero. This indicates that, moving from a situation with no fiscal rules to one in which fiscal rules apply only above 5000, made municipalities just above the threshold less attractive for skilled people, compared to those just below the threshold. Finally, columns (3)-(4) of Tables 1.4 and 1.5 further reinforce the previous results, as the estimated coefficients obtained within the smaller bandwidth $h \in [-250, +250]$ are bigger, compared to those obtained with the optimal bandwidth ¹⁵.

The results of Tables 1.4 and 1.5 are confirmed by the graphical evidence

¹⁵This is a typical feature of Regression Discontinuity Design, which is characterized by a trade-off between bias and efficiency in the estimation of the coefficients. Restricting the bandwidth around the threshold decreases the bias in the estimated coefficients. This has an efficiency cost due to the reduction in the number of observations.

described by Figure 1.5. In the two top graphs of Figure 1.5, we find the *Diff-in-Disc* estimates for the sample of mayors, while in the bottom graphs we find the *Diff-in-Disc* estimates for the entire pool of politicians. In particular, Figure 1.5 reports the scatters and second order polynomial fits for the difference in the values of the dependent variables between all the post-2001 electoral terms and all the pre-2001 electoral terms. As we can see, moving from the left (municipalities below 5000) to the right (municipalities above) of the 5000 threshold there is a clear discontinuity in the change in the politicians' level of education due to the fact that fiscal rules, starting from 2001, applied only above 5000.

Table 1.6 reports the results obtained estimating equation 1.1 using the reduced sample of electoral terms between 1999 and 2005. As noted above, this allows implementation of a clean empirical exercise in which, for the electoral years before 2001, fiscal rules applied to all municipalities, while after 2001 fiscal rules were removed for those below 5000. In this way, it is possible to interpret the coefficient of the main variable of interest (*Relaxation FR*)*(< 5000) as the change in the politicians' level of education in municipalities just below 5000, if compared to those just above, following the transition from a world in which fiscal rules apply to all municipalities (years 1999-2000) to a world in which fiscal rules are removed for those below the 5000 threshold. Panel A of Table 1.6 reports the results relative to the level of education of mayors, while Panel B makes reference to the level of education of all municipal politicians. The results obtained using the optimal bandwidth are reported in columns (1) and (3), while in columns (2) and (4)

we can find the smaller bandwidth $h \in [-250, +250]$. As we can see, the results in Table 1.6 go in the same identical direction as those in Tables 1.4 and 1.5.

1.5.4 The role of past deficits

As reported in Subsection 1.5.1, in the main sample of interest all the municipal characteristics are balanced around the 5000 threshold before and after 2001, except the variable *past deficit* (see Panel B of Table A.2). This variable represents the deficit per capita that a specific mayor inherits from her predecessor ¹⁶, and, as we can see, the removal of fiscal rules has a positive effect on it. This is not a surprising result. In fact, Grembi et al. (2016), using yearly data on Italian municipalities and the same reform exploited in this chapter, have already shown that fiscal rules have been effective in reducing the deficit per capita in Italian municipalities.

The imbalance in the variable *past deficit* represents a potential threat to the identification strategy used in this chapter, because starting from 2001 different levels of deficit below and above the threshold may have a direct effect on the selection of politicians. Thus, *past deficit* represents a potential confounding factor of the effect of fiscal rules on political selection. The first goal of this section is to deal directly with this potential threat, trying to demonstrate that in reality the differential levels of deficit below and above

¹⁶As already said in Subsection 1.5.1, this is the average level of deficit per capita at the moment in which new elections are held, which is when new politicians and new mayors may be selected. For example, for a municipality that voted in 1999 before the relaxation of fiscal rules and then in 2004 after the reform, *past deficit* in 2004 is measured as the average deficit over the years 1999-2003.

the 5000 threshold after 2001 are not an issue. The second goal of this section is to develop a heterogeneity mechanisms analysis, to determine which municipalities are driving the main results.

To develop the empirical exercises reported in this subsection, I imported information about the balance sheets of all Italian municipalities. In particular, as described in Section 1.3, I collected data on the balance sheets of all Italian municipalities for the years from 2000 to 2012. Because I do not have data on the balance sheets of Italian municipalities for the years before 2000, I have limited the exercises in this subsection to just one electoral year before the removal of fiscal rules. For reasons of symmetry, I am also keeping just one electoral year after the relaxation of fiscal rules. Finally, in order to implement a clean empirical exercise in which all the municipalities are constrained by fiscal rules in the electoral years immediately before the 2001 relaxation, I have developed the analysis in this subsection using the sample of electoral terms from 1999 to 2005 (i.e. the one already used in Table 1.6)¹⁷.

As already said, the first goal of this section is to show that the unbalance in the variable *past deficit* is not an issue for the empirical analysis developed in the chapter. This is pursued in two ways: 1) first of all, I exploit one result of Grembi et al. (2016), who have shown that, among the mayors not constrained by fiscal rules, those who are term limited (i.e. second term mayor who cannot re-run for re-election) do not run higher deficits compared to mayors constrained by fiscal rules. Following this result, I implement an

¹⁷I get very similar results if I use the entire sample of electoral terms from 1993 to 2012 (i.e. the sample used in Tables 1.4 and 1.5).

empirical exercise in which I keep only the municipalities that have a term-limited mayor in the electoral term immediately before the 2001 relaxation; 2) I directly control for the variable *past deficit* in the regression analysis, interacting it with all the *Diff-in-Disc* model. The results of the first exercise are reported in Table 1.7, while those of the second are shown in Table 1.8.

Starting with the first exercise, the idea is to exploit a result reported by Grembi et al. (2016), who have found that term limited mayors not constrained by fiscal rules do not generally run higher deficit compared to mayors constrained by fiscal rules. Thus, keeping only municipalities that have a term-limited mayor in the electoral term immediately before the 2001 relaxation, I should find that, at the time of the first election immediately after the 2001 removal of fiscal rules, municipalities just below and just above the 5000 threshold should not be characterized by different levels of *past deficit*. In fact, as described by the Appendix Table A.3, this does not seem to be the case. In practice, in Table A.3, I am repeating the balance tests described in Subsection 1.5.1 using only the sample of municipalities that have a term-limited mayor in the electoral term immediately before the 2001 relaxation. As we can see from the table in the Appendix, all the municipal characteristics are balanced around the 5000 threshold before and after 2001, including *past deficit*. This is consistent with the result reported by Grembi et al. (2016).

Thus, exploiting the fact that, in this subsample, municipalities around the 5000 threshold are not characterized by differential levels of *past deficit* after the removal of fiscal rules, I apply the *Diff-in-Disc* model to this sub-

sample. The results of this exercise are reported in Table 1.7. As we can see, all the estimated coefficients go in the same direction and largely confirm the results already observed in Tables 1.4, 1.5 and 1.6. In particular, the results in Panel B of Table 1.7 confirm the corresponding results in Panel B of Table 1.6, both in terms of direction and magnitude ¹⁸. The estimated coefficients in Panel A confirm the corresponding coefficients in Table 1.6 in terms of direction, while they are bigger in terms of magnitude. This is probably due to the fact that the municipalities used in this exercise, which have a term-limited mayor in the electoral term immediately before the 2001 relaxation, are those forced by the term limit rule to elect a new mayor in the first election immediately after the 2001 relaxation. Thus, these municipalities are characterized by a much higher turnover of mayors if compared to the entire sample of towns used in Subsection 1.5.3. In conclusion, the results of Table 1.7 seem to indicate that the differential levels of *past deficit* after the removal of fiscal rules are not driving the main results found in Subsection 1.5.3. Thus, the imbalance in the variable *past deficit* does not appear to undermine the empirical strategy used in this chapter.

To further reinforce the robustness check described in Table 1.7, in Table 1.8 I report the results of the empirical exercise implemented interacting the *Diff-in-Disc* model with the variable *past deficit*. Notice that this variable, which is measured before the first election held immediately after the 2001

¹⁸The fact that the coefficient in Panel B, column (3) is not statistically significant seems to be for reasons of efficiency. In fact, in implementing this exercise I am left with a very small number of observations. It is reassuring that the magnitude of this coefficient is very similar to the magnitude of the corresponding coefficient in Panel B, column (3) of Table 1.6.

relaxation, can be considered as a pre-treatment covariate with respect to my main variable of interest $(Relaxation\ FR)^*(< 5000)$ ¹⁹. For this reason, *past deficit* should not represent a bad control, as in theory, being measured before the switch from zero to one for the main variable $(Relaxation\ FR)^*(< 5000)$, it cannot be considered a proper outcome for the main variable of interest $(Relaxation\ FR)^*(< 5000)$.

In Table 1.8, I report the coefficients of both $(Relaxation\ FR)^*(< 5000)$ and $(Relaxation\ FR)^*(< 5000)$ interacted with *past deficit*. Panel A reports the results relative to the level of education of mayors, while Panel B refers to the level of education of all municipal politicians. The results obtained using the optimal bandwidth are reported in columns (1) and (3), while in columns (2) and (4) we can find the smaller bandwidth $h \in [-250, +250]$. As we can see, all the estimated coefficients of the variable of interest $(Relaxation\ FR)^*(< 5000)$ are robust to the introduction of the interaction term between $(Relaxation\ FR)^*(< 5000)$ and *past deficit*. Thus, even controlling for the imbalance in *past deficit*, the results of the *Diff-in-Disc* model continue to indicate that the imposition of fiscal rules made towns just below the 5000 threshold more attractive for skilled people, compared to municipalities just above the threshold.

An interesting pattern emerges from Table 1.8: all the estimated coefficients of the interaction term between $(Relaxation\ FR)^*(< 5000)$ and *past*

¹⁹For example, for a municipality that voted in 1999 before the relaxation of fiscal rules and then in 2004 after the reform, *past deficit* in 2004 is measured as the average deficit over the years 1999-2003. Unfortunately, given the temporal limitation in the balance sheets data at my disposal, in building *past deficit*, I had to use contemporaneous values for the electoral terms immediately before the 2001 removal of fiscal rules (i.e. electoral terms 1999-2000).

deficit are negative, and most of them are statistically different from zero. This brings us to the second goal of this subsection, which is try to implement a heterogeneity mechanisms analysis, to reveal which municipalities are driving the main results of the chapter. This is done in both Table 1.8 and 1.9. These heterogeneity mechanism exercises refer to the subsample of mayors only. This is because mayors, who represent the main central figure in the municipal administration in Italy, are probably those who are more attracted by the flexibility and discretion allowed by the absence of fiscal rules. Thus, it is possible to think that, among the towns not constrained by fiscal rules, these flexibility and discretion may be reduced in municipalities already characterized by high levels of *past deficit*. This should primarily affect the selection of mayors, who probably benefit more from the absence of fiscal rules.

Starting from Table 1.8, the negative coefficients of the interaction term between $(Relaxation\ FR)^*(< 5000)$ and *past deficit* seem to indicate that the main results are driven by municipalities recording low deficits in the term immediately before the 2001 removal of fiscal rules. This is because every unit increase in *past deficit* reduces the magnitude of the estimated coefficient of the variable of interest $(Relaxation\ FR)^*(< 5000)$. To reinforce this result, in Table 1.9 I implement two exercises: 1) I interact the *Diff-in-Disc* model with a dummy variable equal to one for municipalities with a value of *past deficit* above the median. The results are in Panel A, where I report the estimated coefficients of $(Relaxation\ FR)^*(< 5000)$ for the subsamples of municipalities with *past deficit* below the median and of towns with *past*

deficit above the median. I also report the coefficient of the difference between the two subsamples; 2) in Panel B I repeat the same exercise using a dummy variable equal to one for municipalities that were running a deficit in the term immediately before the 2001 relaxation, to compare them to towns that were running a surplus.

The results in Table 1.9 go in the same direction as those reported in Table 1.8: the main results of the chapter seem to be driven by municipalities with a low level of deficit (if not a surplus) in the term immediately before the first election after the removal of fiscal rules. In fact, the coefficients of $(Relaxation\ FR)^*(< 5000)$ reported in Table 1.9 are significant in magnitude and statistically different from zero only for municipalities with a low past deficit or towns with a past surplus. Besides that, the coefficients of the difference between the two subsamples are big in magnitude and almost always statistically different from zero in both Panel A and B.

Hence, the results of this heterogeneity analysis suggest that the imposition of fiscal rules above the 5000 threshold only made those towns just below 5000 with low levels of *past deficit* more attractive for skilled people. This is consistent with the idea that competent individuals want to enter politics if they are given enough power, discretion and flexibility. This is probably not the case for municipalities that are not constrained by fiscal rules, but do have high levels of *past deficit*. In fact, skilled individuals, who are probably only attracted to politics if they are free to manage budget outcomes, may not be interested in a mayoral position whose power and discretion are burdened by high deficits and accumulated debt. This is consistent with the

idea that skilled individuals enter politics in the pursuit of a political career, which is more difficult if the role is constrained by fiscal rules or high levels of *past deficit*. Below I study how individuals characterized by different levels of skill and education (i.e. graduate mayors vs. non-graduate mayors) affect budget outcomes and pursue political careers in a different way.

1.5.5 The effect of fiscal rules on the selection of politicians: other characteristics

In this subsection, I briefly describe results from running the *Diff-in-Disc* model using other individual characteristics of the mayors as dependent variables. I report the estimated coefficients of the variable of interest (*Relaxation FR*)*(< 5000) in Table 1.10. I used the entire sample of electoral terms from 1993 to 2012. Panel A of Table 1.10 contains the estimated coefficients for the age and the gender of mayors. Panel B shows the estimated coefficients for a dummy variable equal to one for unemployed mayors and for the total years of past political experience of the mayors²⁰. The results obtained using the optimal bandwidth are reported in columns (1) and (3), while in columns (2) and (4) we can find the smaller bandwidth $h \in [-250, +250]$.

As we can see from Table 1.10, other characteristics of the mayors are not affected by the imposition of fiscal rules in municipalities just above the 5000 threshold, compared to those just below. The only exception is represented by

²⁰The past political experience of the mayors has been built looking at all past political positions occupied by the mayors at any level of politics. In Italy there are five levels of government: municipalities, provinces, regions, the national parliament and the European parliament.

the age of mayors, which yields a negative and large coefficient which is statistically different from zero in the smaller range specification $h \in [-250, +250]$. This suggests that the more competent and skilled individuals who are attracted by the absence of fiscal rules in municipalities just below 5000, may be also relatively younger. This is consistent with the idea that skilled individuals are probably attracted by the discretion and power offered by the absence of fiscal rules because they want to pursue a political career. In fact, as shown by Alesina, Cassidy and Troiano (2016), young politicians are more likely to be elected at higher levels of government after their first experience as mayors. Alesina, Cassidy and Troiano (2016) also show that young politicians tend to manipulate budget outcomes in order to pursue their political career goals. Below I discuss how individuals characterized by different levels of skills and education (i.e. graduate mayors vs. non-graduate mayors) affect budget outcomes and pursue political career goals in a different way.

1.5.6 Validity tests

As previously mentioned, to be valid the identification strategy requires three main assumptions: 1) there must not be manipulative sorting of the running variable R_{it} around the 5000 threshold before and after 2001, such that municipalities must not be able to self-select themselves and decide which side of the cut-off to stay on; 2) other potential outcomes and municipal characteristics must be balanced around the 5000 threshold before and after 2001 and 3) municipalities just below and just above the 5000 threshold must be on parallel trends prior to the removal of the fiscal rules in 2001. In particular, as

indicated by Grembi et al. (2016), there must be no interaction between fiscal rules and the confounding policy, which is the differential wage paid across the 5000 threshold. As I have already dealt with assumption 2 in Subsection 1.5.1, in this subsection I address assumptions 1 and 3, with the goal to show that they hold in the data used in this chapter.

In Figure 1.7, I present scatters and 3rd-order polynomial estimates for Assumption 1 to test the null hypothesis of the continuity of the density of the population around the 5000 threshold. This test is applied to both 1991 and 2001 census populations, which are the two different measures of population used in the empirical analysis. In the top two graphs of Figure 1.7, there is no evidence of discontinuity at the 5000 threshold. To ensure that there has not been sorting over time, with the municipality trying to manipulate population numbers between the 1991 Census and the 2001 one, in Figure 1.7 I also test the continuity of the difference between the density of the 2001 census population and the density of the 1991 census population. As we can observe in the bottom graph, there is no evidence of sorting or discontinuity. These results are consistent with those of Grembi et al. (2016).

Results of testing Assumption 3 are in the Appendix Table A.1, in which I apply the *Diff-in-Disc* model to pre-treatment data (i.e. pre-2001 data) that go from 1993 to 2000. This exercise uses two electoral terms for each municipality: one electoral term before 1999 and one electoral year starting from 1999 or 2000. The main variable of interest is the interaction term $(Introduction\ FR) * (< 5,000)$, which is equal to one for municipalities below 5000 for the electoral terms starting from 1999. This exercise: 1) shows

that municipalities just below and just above the 5000 threshold were on parallel trends in the periods before the removal of the fiscal rules in 2001; 2) demonstrates that municipalities just below and just above the 5000 threshold did not react differently to the introduction of fiscal rules in 1999. This last assumption is required in order to show that over time there has not been any interaction between fiscal rules and the wage increase at the 5000 threshold (i.e. the two policies that change at the 5000 threshold).

As already discussed, if assumption 3 was valid, this falsification test should deliver a zero effect. In fact, as we can see from Table A.1, this is the case. The coefficients reported in Table A.1 are not statistically different from zero. These results provide evidence that municipalities just below and just above the 5000 threshold were on parallel trends in the periods before the removal of the fiscal rules in 2001 and that low-wage and high-wage towns did not react differently to the introduction of fiscal rules in 1999.

The results of Table A.1 are confirmed by the graphs Figure 1.6, in which I am reporting yearly Regression Discontinuity Design estimates of the effect of being below the 5000 threshold on the selection of politicians. The estimates reported are obtained using the bandwidth $h \in [-250, +250]$ for all the years of the sample. The red vertical line represents the introduction of fiscal rules in 1999, which applied to all municipalities. The green vertical line represents the relaxation of fiscal rules in 2001 for municipalities below the 5000 threshold. As in the previous subsection, the main focus is on the level of education of politicians.

As we can see from Figure 1.6, in the years before 2001, municipalities

just below and just above the 5000 threshold showed parallel trends. In particular, for the period before the 2001 relaxation, it is not possible to observe in the data any significant change in the types of politicians selected by municipalities below 5000, compared to those above the threshold. Besides that, consistent with the results of Gagliarducci and Nannicini (2013), municipalities below 5000, in the year before 2001, were selecting less competent individuals. As explained by Gagliarducci and Nannicini (2013), this was due to the lower wage paid to the mayor and the executive officers. As described by Figure 1.6, this pattern in the selection of politicians changes starting from 2001, when fiscal rules were applied only to municipalities above the 5000 threshold. In fact, the evidence provided by the yearly RDD estimates seem to indicate that the imposition of fiscal rules, which reduced the power and the discretion of municipal governments, apparently cancelled the positive effect of the wage increase on the level of education of politicians. As mentioned previously, the big changes in 2004 can be explained by the fact that this year represents the first biggest municipal election after the 2001 relaxation, in which more than half of the municipalities voted. In conclusion, the evidence provided by Figure 1.6 is an indication that, while paying politicians high wages may be a good idea, as more skilled individuals are attracted by high remuneration, competent persons may decide to enter politics for other reasons: Figure 1.6 suggests that reducing the power and the discretion of politicians may have a negative effect on the selection of skilled individuals.

1.6 Conclusion

This Chapter investigates the effect of fiscal rules on the selection of politicians. Using data on Italian municipalities, it shows: 1) the imposition of fiscal rules negatively affects the quality of the political class; 2) the effect is driven by municipalities with low levels of deficit; 3) fiscal rules offset the positive selection effect determined by the wage increase that operates at the 5000 threshold.

This Chapter uses a dataset that contains information on Italian municipalities for the period 1993-2012. Italian municipalities provide an interesting framework for the study of fiscal rules: in 1999 the Italian central government introduced fiscal rules for all Italian municipalities. The rules were then removed in 2001 for municipalities with less than 5000 inhabitants.

Exploiting this institutional setting and implementing a *Diff-in-Disc* model, I show that fiscal rules have a negative effect on the level of education of politicians. In particular, following the 2001 removal of fiscal rules, the percentage of graduate municipal politicians rose by around 12 % points in municipalities just below the threshold, compared to those still constrained by fiscal rules after 2001. At the same time, politicians' average years of education increased by 0.64 years (i.e. approximately 7.68 months). Besides that, following the 2001 reform, the percentage of graduate mayors rose by approximately 27.2 % points in municipalities exempt by fiscal rules. This implies an increase in mayors' average years of education of about 1.5 years.

Two important features of these results are: 1) the increase in politicians' education level in municipalities just below 5000 is consistent with a general

rising trend in the level of education in both the Italian population and the entire sample of municipal politicians. Fiscal rules offset this increasing trend only in municipalities just above 5000 inhabitants, while in those just below the level of education could continue to grow; 2) while before 2001 municipalities just above the threshold were selecting more educated politicians, this difference disappeared after the 2001 reform. This suggests that fiscal rules offset the positive effect of the wage increase on the level of education of politicians.

I also show that the results are robust to the following tests: first, I show that the results are not driven by the imbalance in the levels of deficit around the 5000 threshold before and after 2001. On the contrary, the main results are driven by municipalities with low levels of deficit. This is consistent with the idea that competent individuals enter politics if they are given sufficient discretion and power. This may not be the case in those municipalities not constrained by fiscal rules, but burdened by high deficits.

Second, a falsification test, which uses pre-2001 data, shows that municipalities just below and just above the threshold did not react differently to the introduction of fiscal rules. I then provide evidence that municipal observable characteristics are balanced around the 5000 cutoff before and after 2001. Finally, I show that there is no evidence of manipulative sorting of population numbers around the 5000 threshold before and after 2001.

In conclusion, the empirical evidence in this chapter suggests that, while high wages for politicians may be a good idea as better remuneration attracts more educated persons, competent individuals enter politics for different rea-

sons: the results in this chapter indicates that fiscal rules, reducing the power and discretion of a government, may have a negative effect on the selection of politicians.

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Table 1.1: Fiscal rules in Italy: the Domestic Stability Pact (DSP)

Year	Target	Limits on target	Reference Year	Covered municipalities
1999	Budget Balance	growth: 0 %	1997	All
2000	Budget Balance	growth: 0 %	1998	All
2001	Budget Balance	growth: max 3 %	1999	> 5000
2002	Budget Balance	growth: max 2.5 %	2000	> 5000
	Current Expenditures	growth: max 6 %	2000	
2003	Budget Balance	growth: 0 %	2001	> 5000
2004	Budget Balance	growth: max 1.7 %	2003	> 5000
2005	Total Expenditures	growth: 10 %/11.5 %	2002-2004	> 5000
2006	Current Expenditures	cut: -6.5 %/-8 %	2004	> 5000
	Capital Expenditures	growth: max 8.1 %	2004	
2007	Budget Balance	cut: 0 %/-8 %	2003-2005	> 5000
2008	Budget Balance	cut: 0 %/-8 %	2003-2005	> 5000
2009	Budget Balance	cut: 0 %/-70 %	2007	> 5000
2010	Budget Balance	cut: 0 %/-110 %	2007	> 5000

Notes. Domestic Stability Pact: fiscal rules decided by the Italian central government which apply year by year to the covered municipalities. Columns definition: Target = target decided by the central government for a specific year; Limits on target = these are the limits on the target that the municipal government must apply. *Growth* sets a cap for the increase of the target in a specific year with respect to the the reference year. *Cut* indicates that the municipal government must cut the target by that amount in that specific year with respect to the the reference year. When, in a specific year, there are two limits on target it means that these apply differentially depending on the past fiscal performance of a municipality (i.e. one limit applies to virtuous municipalities, while the other applies to undisciplined towns); Covered municipalities = this indicates the municipalities that must apply the fiscal rules. Legislative sources: annual national budget law (Legge Finanziaria) from 1999 to 2010. Other sources: Grembi et al. (2016); Chiades and Mengotto (2013); Revelli (2013).

Table 1.2: Legislative population thresholds in Italy:
Municipalities below 15,000

Population	Wage Mayor	Wage Ministers	Size Government	Size Council
< 1000	1,291	15 %	4	12
1000-3000	1,446	20 %	4	12
3000-5000	2,169	20 %	4	16
5000-10,000	2,789	50 %	4	16
10,000-15000	3,099	55 %	6	20

Notes. Legislative population thresholds that apply to Italian municipalities with less than 15000 inhabitants. Columns definition: Population = municipal population as measured by the last Census; Wage Mayor = it is the wage paid to the mayor, expressed in Euros at 2000 prices; Wage Ministers = wage paid to the ministers as a percentage of the wage of the mayor; Size Government = maximum number of ministers that can be appointed in the municipal government; Size Council = number of seats in the municipal council. All the wage thresholds date back to 1960, except the 1000 and 10,000 thresholds, which were introduced in 2000. Sources: Gagliarducci and Nannicini (2013); Grembi et al. (2016).

Table 1.3: Descriptive statistics:
Municipalities below 5000 vs. Municipalities above 5000

	(1) Below 5000	(2) obs	(3) Above 5000	(4) obs	(5) p-value
<i>Politicians characteristics</i>					
Graduate Mayor	0.479	3896	0.502	2031	0.096
Years education Mayor	14.998	3896	15.1118	2031	0.204
Proportion graduate all politicians	0.278	3896	0.326	2031	0.000
Average Years education all politicians	13.091	3896	13.544	2031	0.000
Age Mayor	47.974	3869	48.047	2019	0.777
Female Mayor	0.076	3896	0.098	2031	0.002
Unemployed Mayor	0.152	3880	0.136	2020	0.112
Political experience Mayor	6.511	3896	6.498	2031	0.929
<i>Municipal characteristics</i>					
longitude	11.974	3896	12.239	2031	0.000
latitude	43.507	3896	43.421	2031	0.176
altitude	289.990	3896	220.068	2031	0.000
area	35.533	3896	37.288	2031	0.082
South	0.293	3896	0.322	2031	0.024
Centre	0.158	3896	0.138	2031	0.041
North-West	0.351	3896	0.309	2031	0.001
North East	0.195	3896	0.229	2031	0.002
Past Deficit	20.311	3896	13.974	2031	0.000
Income per capita	13523	3896	13501	2031	0.778
% foreign	0.072	3896	0.076	2031	0.003
Population density	295.435	3896	459.197	2031	0.000
% 65	0.192	3896	0.1798	2031	0.000
% 15-64	0.665	3896	0.673	2031	0.000
% 0-18	0.184	3896	0.189	2031	0.000
<i>Education municipal population</i>					
% college	0.075	3896	0.078	2031	0.000
% high secondary	0.287	3896	0.290	2031	0.000
% low secondary	0.314	3896	0.314	2031	0.819
% primary	0.223	3896	0.217	2031	0.000
% illiterate	0.013	3896	0.012	2031	0.000

Notes. Municipalities between 3000 and 7000. Electoral terms between 1993 and 2012. *Below 5000* = 1 for municipalities between 3000 and 5000 inhabitants. *Above 5000* = 1 for municipalities between 5000 and 7000 inhabitants. Columns (1) and (3) report the mean values for the two samples; *obs* is the number of observations; *p-value* is the p-value of the difference between the means of the two samples.

Table 1.4: Effect of fiscal rules on the education of Mayors:
Electoral years 1993-2012

	(1)	(2)	(3)	(4)
<i>Panel A: Mayors with university degree</i>				
Optimal bandwidth	CCT	CCT	No	No
<i>(Relaxation FR)</i> *(< 5000)	0.272** (0.114)	0.247** (0.119)	0.495*** (0.174)	0.452** (0.181)
<i>(Introduction FR)</i> *(< 5000)		-0.068 (0.113)		-0.130 (0.160)
Bandwidth	609.3	609.3	250	250
Observations	1,758	1,758	747	747
<i>Panel B: Years of education Mayors</i>				
Optimal bandwidth	CCT	CCT	No	No
<i>(Relaxation FR)</i> *(< 5000)	1.485* (0.765)	1.404* (0.791)	2.957** (1.181)	2.783** (1.209)
<i>(Introduction FR)</i> *(< 5000)		-0.190 (0.804)		-0.450 (1.128)
Bandwidth	606.0	606.0	250	250
Observations	1,744	1,744	747	747

Notes. Diff-in-disc estimates of the impact of fiscal rules on the education of politicians. Municipalities between 3000 and 7000. Electoral terms between 1993 and 2012. Treatment variables: *(Introduction FR)* is a dummy variable =1 for the electoral years 1999-2000, during which fiscal rules applied to all municipalities. *(Relaxation FR)* is a dummy variable =1 for all electoral years starting from 2001, after which fiscal rules were removed for municipalities <5000. (< 5000) is a dummy variable =1 for municipalities < 5000 inhabitants. The outcome variable in Panel A is a dummy variable =1 for mayors with a university degree. The outcome variable in Panel B is years of education of mayors. The bandwidth in columns (1)-(2) is calculated using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. The bandwidth in column (3)-(4) is $h = 250$. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 1.5: Effect of fiscal rules on the education of all politicians:
Electoral years 1993-2012

	(1)	(2)	(3)	(4)
<i>Panel A: Proportion all politicians with a university degree</i>				
Optimal bandwidth	CCT	CCT	No	No
<i>(Relaxation FR)</i> *(< 5000)	0.119*** (0.045)	0.117** (0.050)	0.141*** (0.052)	0.123** (0.058)
<i>(Introduction FR)</i> *(< 5000)		-0.007 (0.049)		-0.061 (0.054)
Bandwidth	326.8	326.8	250	250
Observations	1000	1000	747	747
<i>Panel B: Average years of education all politicians</i>				
Optimal bandwidth	CCT	CCT	No	No
<i>(Relaxation FR)</i> *(< 5000)	0.640* (0.335)	0.648* (0.363)	0.987** (0.457)	0.908** (0.496)
<i>(Introduction FR)</i> *(< 5000)		0.040 (0.321)		-0.250 (0.410)
Bandwidth	476.2	476.2	250	250
Observations	1,405	1,405	747	747

Notes. Diff-in-disc estimates of the impact of fiscal rules on the education of politicians. Municipalities between 3000 and 7000. Electoral years between 1993 and 2012. Treatment variables: *(Introduction FR)* is a dummy variable =1 for the electoral years 1999-2000, during which fiscal rules applied to all municipalities. *(Relaxation FR)* is a dummy variable =1 for all electoral years starting from 2001, after which fiscal rules were removed for municipalities <5000. (< 5000) is a dummy variable =1 for municipalities < 5000 inhabitants. The outcome variable in Panel A is the proportion of all municipal politicians with a university degree. The outcome variable in Panel B is average years of education of all municipal politicians. The bandwidth in columns (1)-(2) is calculated using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. The bandwidth in column (3)-(4) is $h = 250$. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 1.6: Effect of fiscal rules on the education of politicians:
Electoral years starting from 1999

	(1)	(2)	(3)	(4)
<i>Panel A: Level of Education of mayors</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Mayor with university degree</i>		<i>Years of education</i>	
<i>(Relaxation FR)*(< 5000)</i>	0.434** (0.174)	0.648** (0.257)	1.918* (1.110)	3.529** (1.741)
Bandwidth	592.1	250	629.1	250
Observations	540	235	578	235
<i>Panel B: Average level of education of all politicians</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Proportion university degree</i>		<i>Average years of education</i>	
<i>(Relaxation FR)*(< 5000)</i>	0.081* (0.046)	0.189*** (0.066)	0.751** (0.381)	1.342** (0.593)
Bandwidth	583.2	250	632	250
Observations	531	235	694.7	235

Notes. Diff-in-disc estimates of the impact of fiscal rules on the education of politicians. Municipalities between 3000 and 7000. Electoral years between 1999 and 2005. Estimates obtained working with 2 electoral years for each municipality: 1 electoral year before 2001 and 1 electoral year starting from 2001. Treatment variables: *(Relaxation FR)* is a dummy variable =1 for all electoral years starting from 2001, after which fiscal rules were removed for municipalities <5000. *(< 5000)* is a dummy variable =1 for municipalities < 5000 inhabitants. The outcome variables in Panel A measure the level of education of mayors. The outcome variables in Panel B measure the level of education of all municipal politicians. The bandwidth in columns (1) and (3) is calculated using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. The bandwidth in column (2) and (4) is $h = 250$. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 1.7: Effect of fiscal rules on the education of politicians:
Electoral years starting from 1999;
Term limited mayors before the reform

	(1)	(2)	(3)	(4)
<i>Panel A: Level of Education of mayors</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Mayor with university degree</i>		<i>Years of education</i>	
<i>(Relaxation FR)*(< 5000)</i>	0.749*** (0.250)	0.753** (0.352)	4.689*** (1.545)	4.844** (2.435)
Bandwidth	549.6	250	632.4	250
Observations	285	138	325	138
<i>Panel B: Average level of education of all politicians</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Proportion university degree</i>		<i>Average years of education</i>	
<i>(Relaxation FR)*(< 5000)</i>	0.125* (0.071)	0.145* (0.084)	0.687 (0.589)	1.711** (0.802)
Bandwidth	339.3	250	490.4	250
Observations	190	138	260	138

Notes. Diff-in-disc estimates of the impact of fiscal rules on the education of politicians. Municipalities between 3000 and 7000. Electoral years between 1999 and 2005. Estimates obtained working with 2 electoral years for each municipality: 1 electoral year before 2001 and 1 electoral year starting from 2001. Regressions run using the subsample in which all the mayors cannot be re-elected after the electoral mandate just before the 2001 relaxation of fiscal rules (i.e. all mayors before the reform are term limited). Treatment variables: *(Relaxation FR)* is a dummy variable =1 for all electoral years starting from 2001, after which fiscal rules were removed for municipalities <5000. (< 5000) is a dummy variable =1 for municipalities < 5000 inhabitants. The outcome variables in Panel A measure the level of education of mayors. The outcome variables in Panel B measure the level of education of all municipal politicians. The bandwidth in columns (1) and (3) is calculated using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. The bandwidth in column (2) and (4) is $h = 250$. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 1.8: Effect of fiscal rules on the education of politicians:
Electoral years starting from 1999;
Interaction with Past Deficit

	(1)	(2)	(3)	(4)
<i>Panel A: Level of Education of mayors</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Mayor with university degree</i>		<i>Years of education</i>	
<i>(Relaxation FR)*(< 5000)</i>	0.628*** (0.193)	1.155*** (0.262)	3.326*** (1.190)	6.708*** (1.790)
<i>(Relaxation FR)*(< 5000)*(Past Deficit)</i>	-0.009* (0.005)	-0.023*** (0.006)	-0.067** (0.028)	-0.141*** (0.038)
Bandwidth	592.1	250	629.1	250
Observations	540	235	578	235
<i>Panel B: Average level of education of all politicians</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Proportion university degree</i>		<i>Average years of education</i>	
<i>(Relaxation FR)*(< 5000)</i>	0.101* (0.053)	0.311*** (0.075)	0.818* (0.416)	2.382*** (0.652)
<i>(Relaxation FR)*(< 5000)*(Past Deficit)</i>	-0.001 (0.002)	-0.006*** (0.002)	-0.004 (0.010)	-0.044*** (0.015)
Bandwidth	583.2	250	694.7	250
Observations	531	235	632	235

Notes. Diff-in-disc estimates of the impact of fiscal rules on the education of politicians. Municipalities between 3000 and 7000. Electoral years between 1999 and 2005. Estimates obtained working with 2 electoral years for each municipality: 1 electoral year before 2001 and 1 electoral year starting from 2001. Treatment variables: *(Past Deficit)* is the municipal average deficit measured in the electoral mandate before the removal of fiscal rules in 2001 for municipalities < 5000. *(Relaxation FR)* is a dummy variable =1 for all electoral years starting from 2001, after which fiscal rules were removed for municipalities < 5000. *(< 5000)* is a dummy variable =1 for municipalities < 5000 inhabitants. The outcome variables in Panel A measure the level of education of mayors. The outcome variables in Panel B measure the level of education of all municipal politicians. The bandwidth in columns (1) and (3) is calculated using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. The bandwidth in column (2) and (4) is $h = 250$. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 1.9: Effect of fiscal rules on the education of politicians:
Electoral years starting from 1999;
Low vs high past deficit municipalities

	(1)	(2)	(3)	(4)
<i>Panel A: Low vs. High past deficit</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Mayor with university degree</i>		<i>Years of education mayor</i>	
<i>(Relaxation FR)*(< 5000)</i> <i>(Past Deficit < median)</i>	0.787*** (0.234)	1.325*** (0.334)	4.172*** (1.410)	8.119*** (2.092)
<i>(Relaxation FR)*(< 5000)</i> <i>(Past Deficit >= median)</i>	0.214 (0.256)	0.242 (0.359)	0.287 (1.677)	0.549 (2.473)
Difference	-0.573* (0.346)	-1.082** (0.490)	-3.884* (2.191)	-7.570** (3.239)
Bandwidth	592.1	250	629.1	250
Observations	540	235	578	235
<i>Panel B: Past surplus vs. Past deficit</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Mayor with university degree</i>		<i>Years of education mayor</i>	
<i>(Relaxation FR)*(< 5000)</i> <i>(Municipalities with past surplus)</i>	0.943*** (0.343)	2.009*** (0.360)	5.021*** (1.770)	10.915*** (2.106)
<i>(Relaxation FR)*(< 5000)</i> <i>(Municipalities with past deficit)</i>	0.334* (0.198)	0.420 (0.296)	1.433 (1.305)	2.252 (2.059)
Difference	-0.609 (0.397)	-1.589*** (0.466)	-3.587 (2.199)	-8.663*** (2.946)
Bandwidth	540	250	629.1	250
Observations	592.1	235	578	235

Notes. Diff-in-disc estimates of the impact of fiscal rules on the education of politicians. Municipalities between 3000 and 7000. Electoral years between 1999 and 2005. Estimates obtained working with 2 electoral years for each municipality: 1 electoral year before 2001 and 1 electoral year starting from 2001. Treatment variables: *(Past Deficit)* is the municipal average deficit measured in the electoral mandate before the removal of fiscal rules in 2001 for municipalities < 5000. *(Relaxation FR)* is a dummy variable =1 for all electoral years starting from 2001, after which fiscal rules were removed for municipalities <5000. (< 5000) is a dummy variable =1 for municipalities < 5000 inhabitants. Panel A compares municipalities with a value of *(Past Deficit)*<median with those with a value of *(Past Deficit)*>=median. Panel B compares municipalities with a value of *(Past Deficit)*<=0 with those with a value of *(Past Deficit)*>0. The outcome variables in both Panel A and B are: (a) a dummy variable =1 for mayors with a university degree in columns (1)-(2); (b) years of education of mayors in columns(3)-(4). The bandwidth in columns (1) and (3) is calculated using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. The bandwidth in column (2) and (4) is $h = 250$. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 1.10: Effect of fiscal rules on other characteristics of mayors:
Electoral years 1993-2012

	(1)	(2)	(3)	(4)
<i>Panel A: Age and gender of mayor</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Age of mayor</i>		<i>Female mayor</i>	
<i>(Relaxation FR)*(< 5000)</i>	-1.597 (2.302)	-5.764* (3.435)	0.047 (0.075)	0.067 (0.087)
Bandwidth	520.7	250	395.9	250
Observations	1,532	743	1,178	747
<i>Panel B: Employment status and past political experience</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Unemployed mayor</i>		<i>Political experience mayor</i>	
<i>(Relaxation FR)*(< 5000)</i>	-0.015 (0.093)	-0.148 (0.121)	1.674 (1.238)	1.667 (1.753)
Bandwidth	408.6	250	492.3	250
Observations	1,213	741	1,466	747

Notes. Diff-in-disc estimates of the impact of fiscal rules on the education of politicians. Municipalities between 3000 and 7000. Electoral years between 1993 and 2012. Treatment variables: *(Relaxation FR)* is a dummy variable =1 for all electoral years starting from 2001, after which fiscal rules were removed for municipalities <5000. (*< 5000*) is a dummy variable =1 for municipalities < 5000 inhabitants. Outcome variables in Panel A: (a) age of the mayor in columns (1)-(2); (b) dummy variable =1 for female mayor in columns (3)-(4). Outcome variables in Panel B: (a) dummy variable =1 for unemployed mayor in columns (1)-(2); (b) years of past political experience of the mayor at all levels of politics in columns (3)-(4). The bandwidth in columns (1) and (3) is calculated using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. The bandwidth in column (2) and (4) is $h = 250$. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Figure 1.1: Percentage Italian population with a college degree

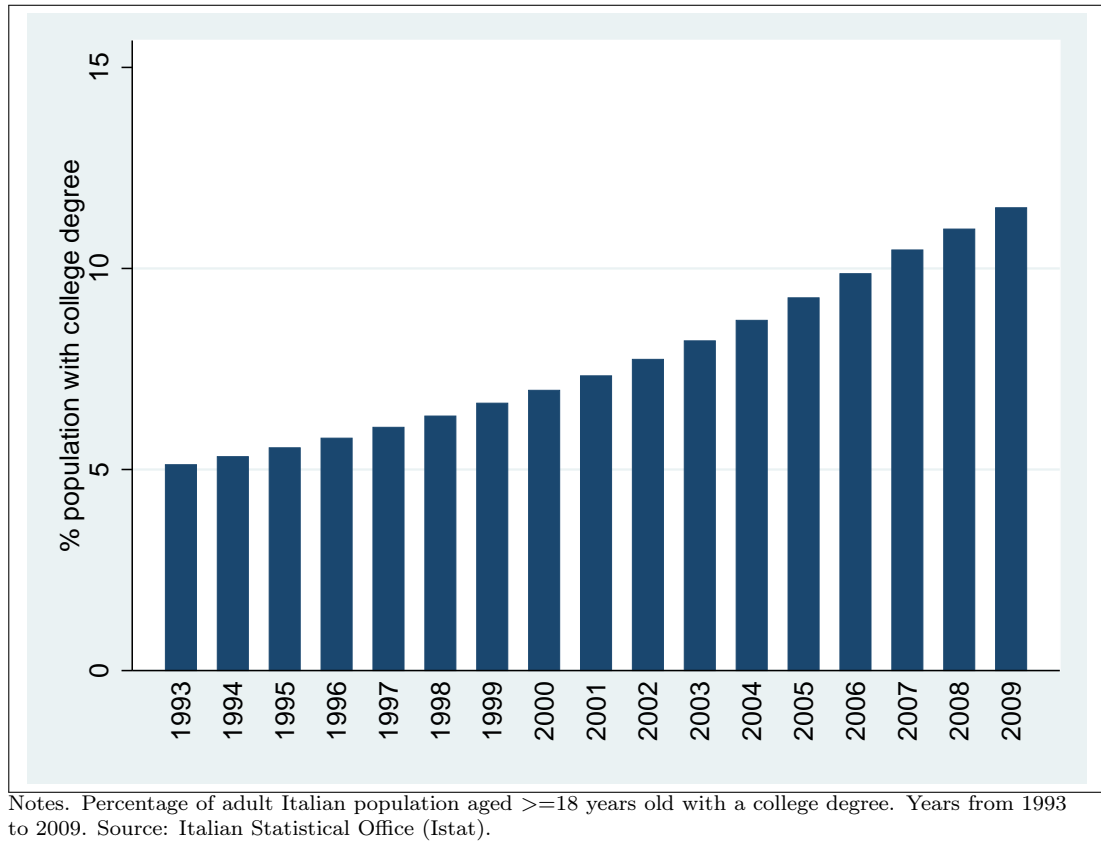
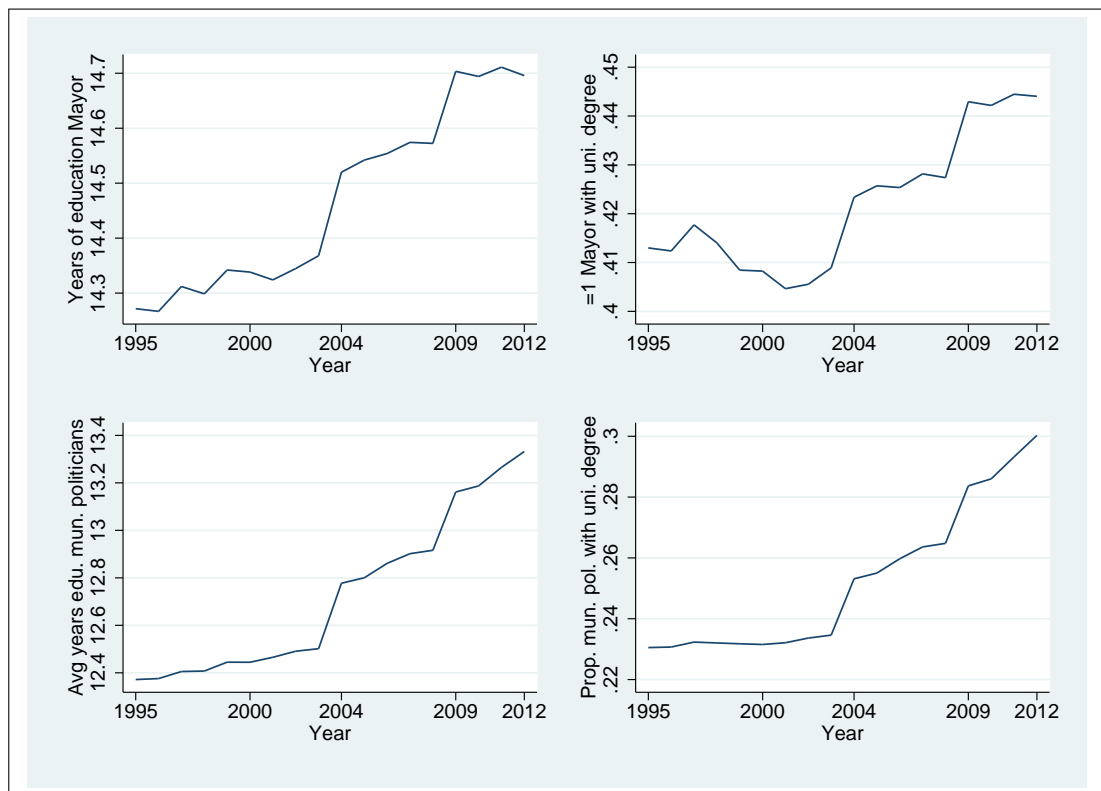
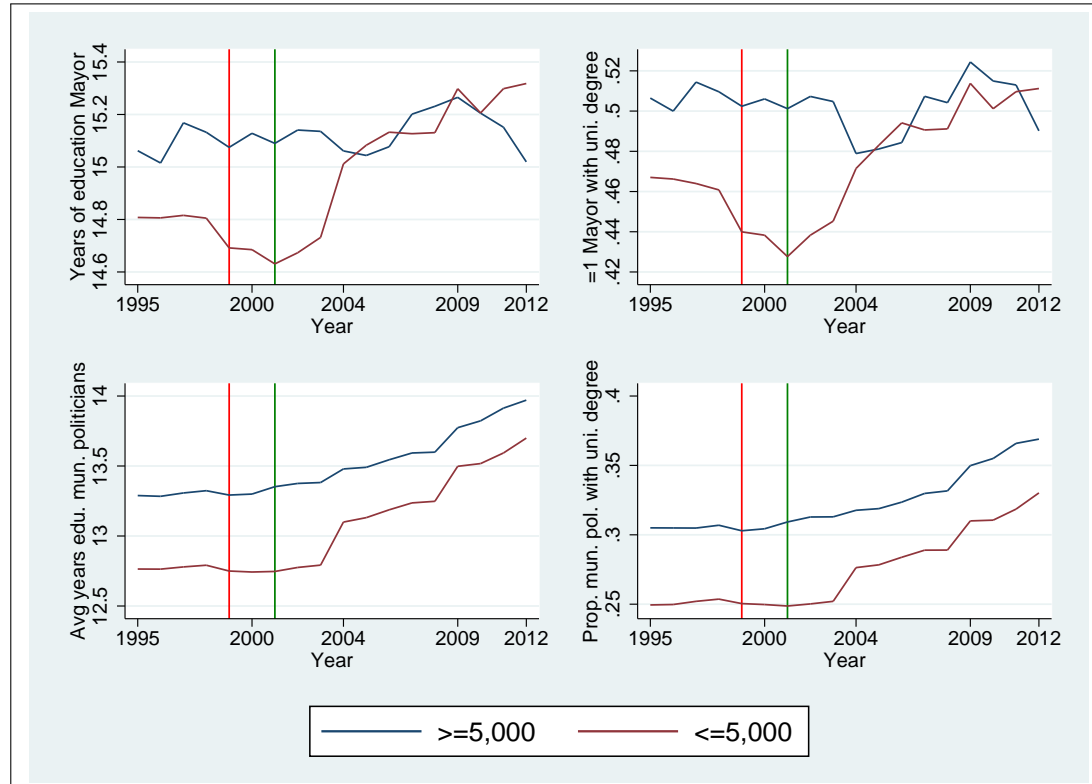


Figure 1.2: Level of education of municipal politicians, all municipalities



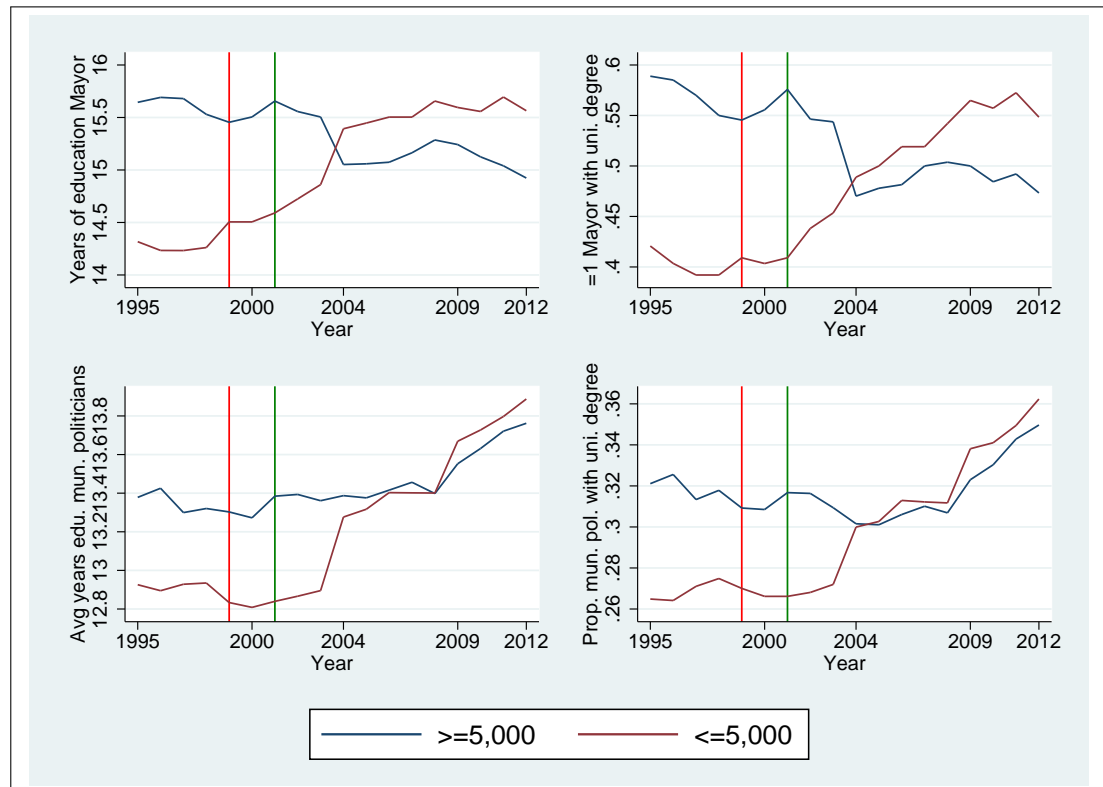
Notes. All Italian municipalities. Years between 1995 and 2012. Top graphs: (1) Evolution over time of the average years of education of the mayors of all Italian municipalities; (2) evolution over time of the proportion of mayors with a university degree. Bottom graphs: (1) Evolution over time of the average years of education of all municipal politicians elected in all Italian municipalities; (2) evolution over time of the proportion of all municipal politicians with a university degree.

Figure 1.3: Level of education of municipal politicians, municipalities between 3000-7000



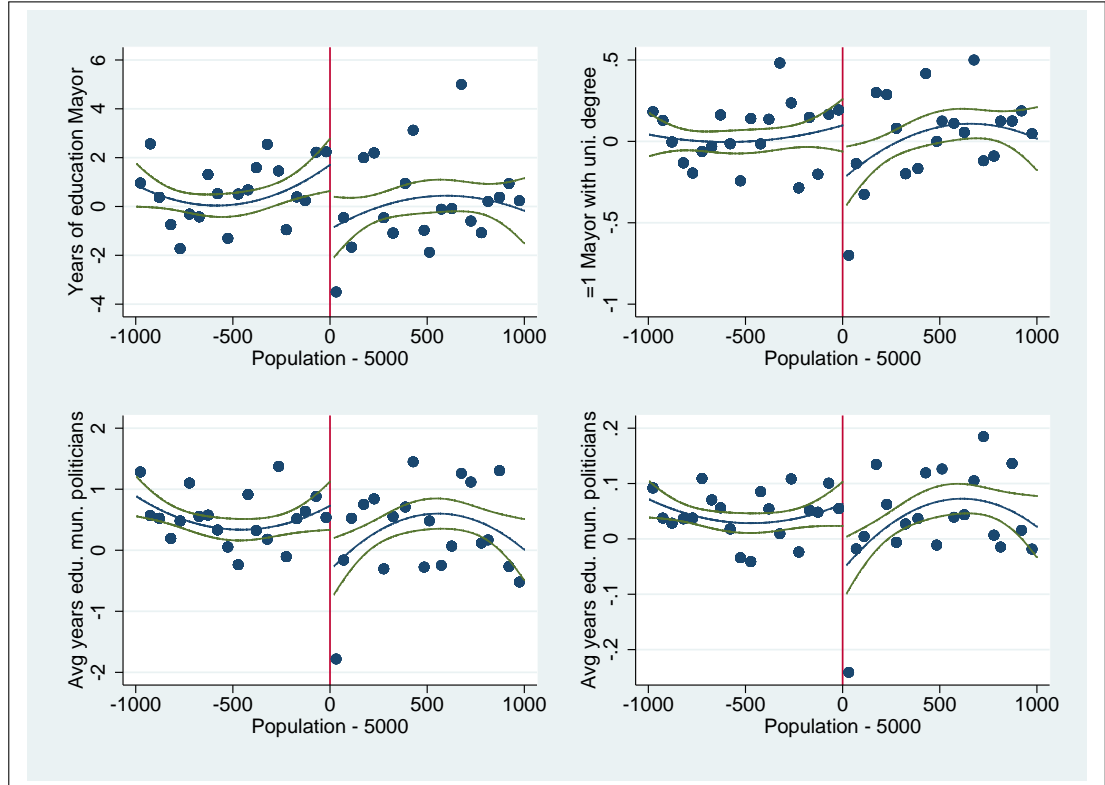
Notes. Italian municipalities between 3000 and 7000 inhabitants. Years between 1995 and 2012. The blue lines capture the behaviour of municipalities between 5000-7000 inhabitants. The red lines capture the behaviour of municipalities between 3000-5000 inhabitants. The red vertical lines represents the introduction of fiscal rules in 1999, which applied to all municipalities. The green vertical lines represents the relaxation of fiscal rules in 2001 for municipalities below the 5000 threshold. Top graphs: (1) Evolution over time of the average years of education of the mayors of Italian municipalities between 3000-7000 inhabitants; (2) evolution over time of the proportion of mayors with a university degree. Bottom graphs: (1) Evolution over time of the average years of education of all municipal politicians elected in Italian municipalities between 3000-7000 inhabitants; (2) evolution over time of the proportion of all municipal politicians with a university degree.

Figure 1.4: Level of education of municipal politicians, municipalities between 4,400-5,600



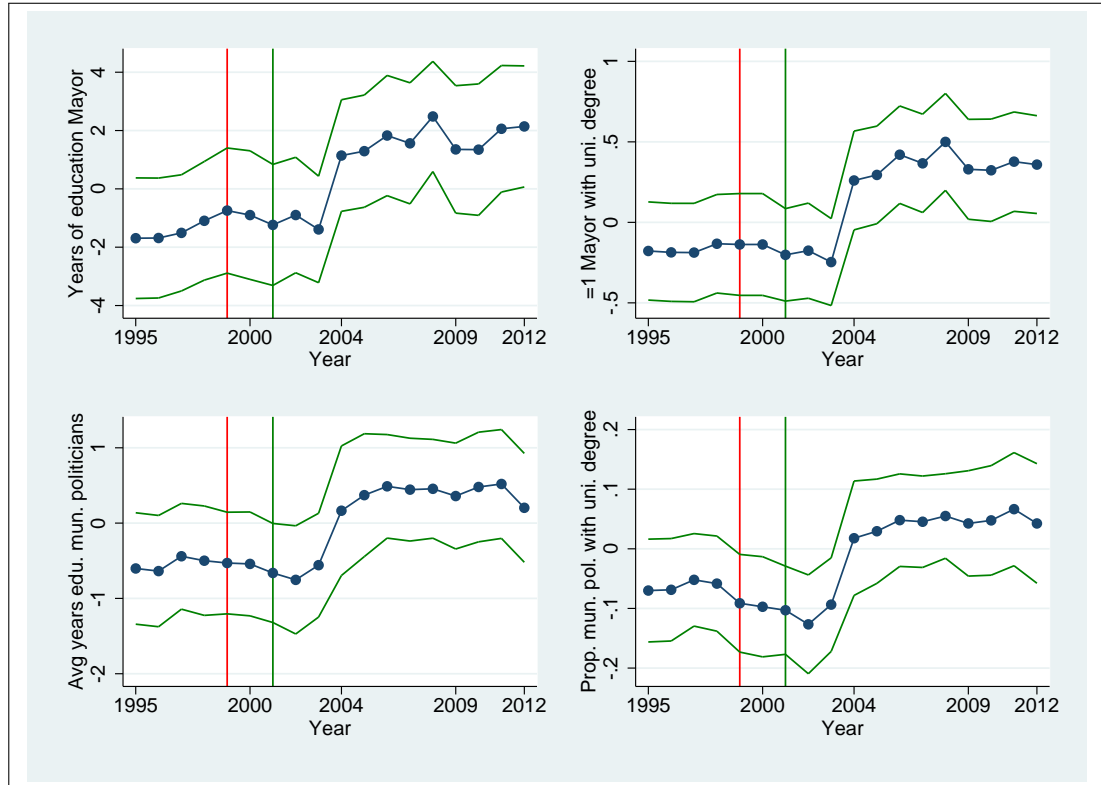
Notes. Italian municipalities between 4,400 and 5,600 inhabitants. Years between 1995 and 2012. The blue lines capture the behaviour of municipalities between 5000-5,600 inhabitants. The red lines capture the behaviour of municipalities between 4,400-5000 inhabitants. The red vertical lines represents the introduction of fiscal rules in 1999, which applied to all municipalities. The green vertical lines represents the relaxation of fiscal rules in 2001 for municipalities below the 5000 threshold. Top graphs: (1) Evolution over time of the average years of education of the mayors of Italian municipalities between 4,400-5,600 inhabitants; (2) evolution over time of the proportion of mayors with a university degree. Bottom graphs: (1) Evolution over time of the average years of education of all municipal politicians elected in Italian municipalities between 4,400-5,600 inhabitants; (2) evolution over time of the proportion of all municipal politicians with a university degree.

Figure 1.5: The Effect of Fiscal Rules on the selection of politicians, difference-in-discontinuity



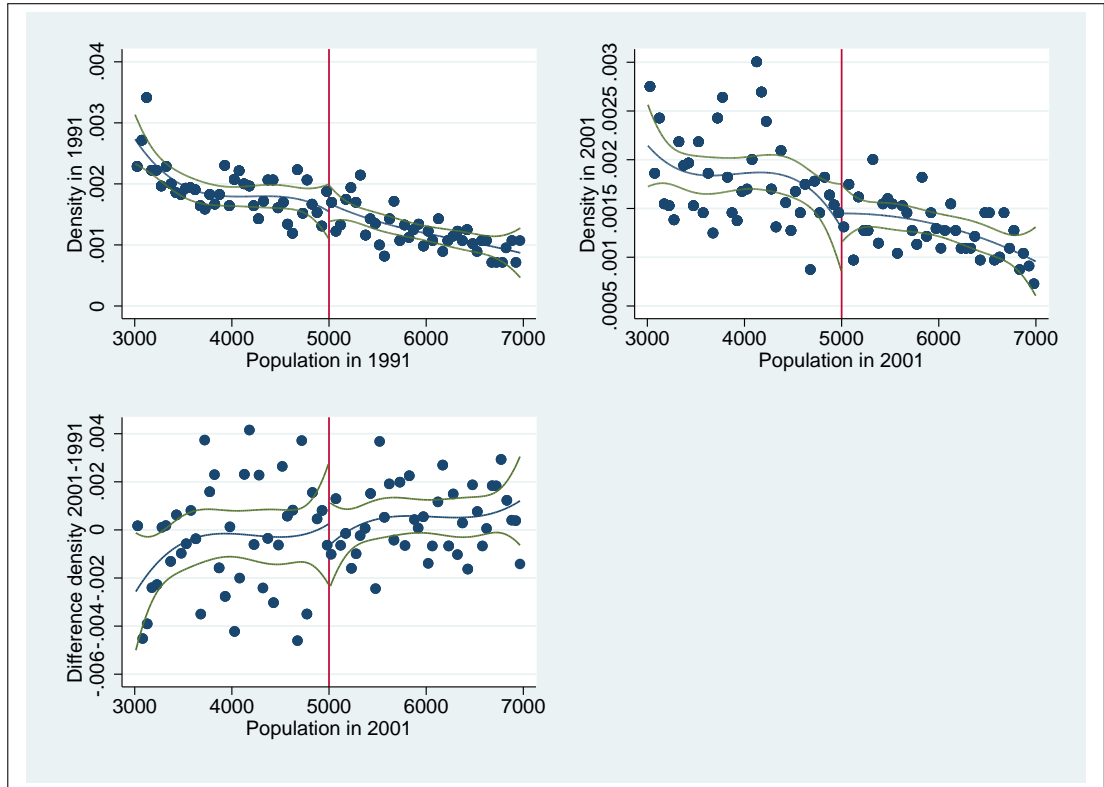
Notes. Difference-in-discontinuity estimates. Horizontal axis: normalized population around the 5000 threshold. Vertical axis: difference in the dependent variable of all post-reform elections (i.e. elections starting from 2001) with all the pre-reform elections (i.e. election before 2001). Scatter points are averaged over bins of 50 inhabitants. The central blue line represents a split second-order polynomial of the outcome variable in the normalized population, fitted separately on each side of the threshold. The green lines represent the 95 percent confidence interval. Top graphs: (1) Difference-in-discontinuity estimates for the average years of education of the mayors; (2) Difference-in-discontinuity estimates for the proportion of mayors with a university degree. Bottom graphs: (1) Difference-in-discontinuity estimates for the average years of education of all municipal politicians; (2) Difference-in-discontinuity estimates for the proportion of all municipal politicians with a university degree.

Figure 1.6: The Effect of Fiscal Rules on the selection of politicians, yearly RDD



Notes. Yearly evolution of local linear regression RDD estimates. Horizontal axis: years between 1995 and 2012. The red vertical lines represents the introduction of fiscal rules in 1999, which applied to all municipalities. The green vertical lines represents the relaxation of fiscal rules in 2001 for municipalities below the 5000 threshold. Vertical axis: RDD estimates of local linear regressions run with bandwidth $h = 250$ around the threshold. The central blue lines represent the local linear regression estimates. Each blue dot represents a local linear regression estimate for a specific year of the sample. The green lines represent the 95 percent confidence interval. Top graphs: (1) Evolution of RDD estimates over time for the average years of education of the mayors; (2) Evolution of RDD estimates over time for the proportion of mayors with a university degree. Bottom graphs: (1) Evolution of RDD estimates over time for the average years of education of all municipal politicians; (2) Evolution of RDD estimates over time for the proportion of all municipal politicians with a university degree.

Figure 1.7: Density test on the running variable



Notes. Discontinuity test for the density of the population at the 5000 threshold. Top graphs: (1) density test for the population as measured by the 1991 Census; (2) density test for the population as measured by the 2001 Census. Bottom graph: (1) discontinuity test for the difference between the density of the 2001 Census population and the density of the 1991 Census population.

Appendix

This Appendix provides additional results and robustness checks, which are also discussed in the paper. In particular:

- Table A.1: Effect of fiscal rules on the education of politicians. Falsification test in 1999.
- Table A.2: Balance test on municipal covariates. Electoral years 1993-2012.
- Table A.3: Balance test on municipal covariates. Electoral years starting from 1999 (Term limited mayors before the reform).

Table A.1: Effect of fiscal rules on the education of politicians:
Falsification test in 1999

	(1)	(2)	(3)	(4)
<i>Panel A: Level of Education of mayors</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Mayor with university degree</i>		<i>Years of education</i>	
<i>(Introduction FR)*(< 5000)</i>	0.061 (0.090)	0.009 (0.085)	0.743 (0.661)	0.486 (0.705)
Bandwidth	382.9	250	452.6	250
Observations	378	244	422	244
<i>Panel B: Average level of education of all politicians</i>				
Optimal bandwidth	CCT	No	CCT	No
Dependent variable	<i>Proportion university degree</i>		<i>Average years of education</i>	
<i>(Introduction FR)*(< 5000)</i>	-0.027 (0.047)	-0.071 (0.044)	0.378 (0.310)	-0.219 (0.341)
Bandwidth	292.2	250	420	250
Observations	292	244	408	244

Notes. Falsification test in 1999, testing for the presence of a differential reaction to the introduction of fiscal rules for municipalities <5000 if compared to municipalities ≥ 5000 . Municipalities between 3000 and 7000. Electoral years between 1993 and 2000. Estimates obtained working with 2 electoral years for each municipality: 1 electoral year before 1999 and 1 electoral year in 1999 or 2000. Treatment variables: *(Introduction FR)* is a dummy variable =1 for the electoral years 1999-2000, during which fiscal rules applied for all municipalities. (< 5000) is a dummy variable =1 for municipalities < 5000 inhabitants. The outcome variables in Panel A measure the level of education of mayors. The outcome variables in Panel B measure the level of education of all municipal politicians. The bandwidth in columns (1) and (3) is calculated using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. The bandwidth in column (2) and (4) is $h = 250$. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table A.2: Balance test on municipal covariates:
Electoral years 1993-2012

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A: Education municipal population</i>								
<i>(Relaxation FR)*(< 5000)</i>	% illiterate	% primary	% low secondary	% high secondary	% university degree			
	0.001 (0.005)	0.012 (0.008)	0.001 (0.013)	-0.015 (0.013)	-0.003 (0.009)			
Bandwidth	355.7	577.0	397.5	365.1	312.7			
Observations	1,074	1,657	1,186	1,099	955			
<i>Panel B: Characteristics municipal population</i>								
<i>(Relaxation FR)*(< 5000)</i>	% 0-18	% 15-64	% 65+	population density	% foreign	(log) income per capita	past deficit	
	-0.003 (0.012)	0.003 (0.010)	-0.004 (0.012)	85.441 (133.027)	-0.007 (0.014)	-0.055 (0.073)	22.674** (11.045)	
Bandwidth	409.4	380.4	474.1	390.8	368.1	359.8	419.6	
Observations	1,220	1,137	1,393	1,164	1,115	1,088	1,240	
<i>Panel C: Geographical characteristics municipalities</i>								
<i>(Relaxation FR)*(< 5000)</i>	NE	NW	CEN	SOU	area	altitude	latitude	longitude
	-0.080 (0.138)	0.098 (0.167)	-0.133 (0.103)	0.053 (0.159)	-5.454 (11.176)	27.854 (81.782)	0.140 (0.751)	0.350 (0.865)
Bandwidth	405.0	365.8	499.7	372.0	370.1	371.8	403.3	366.2
Observations	1,212	1,099	1,481	1,121	1,119	1,121	1,212	1,101

Notes. Diff-in-disc estimates of the impact of fiscal rules on municipal covariates. Municipalities between 3000 and 7000. Electoral years between 1993 and 2012. Treatment variables: *(Relaxation FR)* is a dummy variable =1 for all electoral years starting from 2001, after which fiscal rules were removed for municipalities <5000. (< 5000) is a dummy variable =1 for municipalities < 5000 inhabitants. Bandwidth calculated using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table A.3: Balance test on municipal covariates:
Electoral years starting from 1999;
Term limited mayors before the reform

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A: Education municipal population</i>								
	% illiterate	% primary	% low secondary	% high secondary	% university degree			
<i>(Relaxation FR)*(< 5000)</i>	0.003 (0.006)	0.009 (0.018)	-0.026 (0.018)	0.002 (0.019)	0.001 (0.014)			
Bandwidth	415.1	322.3	396.8	337.1	378.5			
Observations	220	178	212	189	205			
<i>Panel B: Characteristics municipal population</i>								
	% 0-18	% 15-64	% 65+	population density	% foreign	(log) income per capita	past deficit	
<i>(Relaxation FR)*(< 5000)</i>	-0.012 (0.012)	-0.024 (0.016)	0.033 (0.020)	-280.066 (320.193)	-0.024 (0.022)	-0.088 (0.097)	-0.568 (15.913)	
Bandwidth	536.3	378.6	441.9	423.9	416.3	401.4	519.7	
Observations	283	205	234	224	221	215	275	
<i>Panel C: Geographical characteristics municipalities</i>								
	NE	NW	CEN	SOU	area	altitude	latitude	longitude
<i>(Relaxation FR)*(< 5000)</i>	0.194 (0.259)	-0.050 (0.232)	0.066 (0.210)	0.117 (0.192)	-12.466 (14.259)	-21.645 (112.392)	-0.934 (1.103)	1.291 (1.256)
Bandwidth	397.9	604.2	514.1	410.1	322.3	375.2	386.7	381.6
Observations	212	311	270	219	178	203	208	206

Notes. Diff-in-disc estimates of the impact of fiscal rules on the education of politicians. Municipalities between 3000 and 7000. Electoral years between 1999 and 2005. Estimates obtained working with 2 electoral years for each municipality: 1 electoral year before 2001 and 1 electoral year starting from 2001. Regressions run using the sub-sample in which all the mayors cannot be re-elected after the electoral mandate just before the 2001 relaxation of fiscal rules (i.e. all mayors before the reform are term limited). Treatment variables: *(Relaxation FR)* is a dummy variable = 1 for all electoral years starting from 2001, after which fiscal rules were removed for municipalities <5000. (< 5000) is a dummy variable = 1 for municipalities < 5000 inhabitants. Bandwidth calculated using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Chapter 2

Do educated politicians matter for fiscal outcomes? Evidence from Italian municipalities

Abstract

Chapter 1 showed that more educated individuals are less likely to enter politics in institutional contexts that are constrained by fiscal rules. In this chapter, I investigate the fiscal implications of educated versus non-educated political leaders. In particular, using data on Italian municipalities, I study whether graduate mayors, in comparison to non-graduate mayors, affect fiscal policies in a different way. This is done with two methodologies: 1) Regression Discontinuity Design, which compares municipalities in which a graduate mayoral candidate just won with municipalities in which a graduate mayoral candidate just lost; 2) Propensity-Score Matching on the subsample of close mixed electoral competitions. The main results show that graduate mayors run higher deficits, reducing revenues more than expenditures. The effect is significant only for municipalities not constrained by fiscal rules. Therefore, this indicates: 1) more educated politicians have stronger preferences

for higher deficits. This may explain why they are less likely to enter politics in institutional contexts constrained by fiscal rules; 2) fiscal rules, besides directly constraining the deficit (Grembi et al., 2016), indirectly foster fiscal stability by discouraging the entry of politicians with stronger preferences for higher deficits.

2.1 Introduction

In Chapter 1, I show that the imposition of fiscal rules negatively affects the quality of the political class, and in particular the level of education of politicians. This implies that more competent individuals (as measured by education levels) are less likely to enter politics in places where fiscal rules apply. At the same time, these results seem to indicate that more educated individuals prefer to enter politics in institutional environments not affected by fiscal rules.

The results of Chapter 1 raise questions about whether more educated politicians, when compared to those less educated, have different preferences in terms of fiscal policies. Thus, in this chapter, I analyse the fiscal consequences of highly-educated politicians, compared to the low-educated ones. Using data on Italian municipalities, I study whether mayors with a college degree affect fiscal policies differently compared to mayors without a degree. This comparison is implemented by distinguishing between municipalities affected by the application of fiscal rules and those not affected by them.

The main dependent variable used in this chapter to evaluate the fiscal behaviour of mayors is the average deficit as a fraction of total revenues, as the deficit is one of the fiscal outcomes which is mainly affected by fiscal

rules (Grembi et al., 2016). Besides that, I also study the composition of the deficit, looking at different types of expenditures and revenues.

To implement the empirical analysis described below, I use the same dataset as in Chapter 1. This is composed of the sample of Italian municipalities with a population of between 3000 and 7000 inhabitants for the electoral terms from 1993 to 2012. As described in Chapter 1, in 1999 the Italian government introduced a set of fiscal rules, intended to reduce the incentives to accumulate debt and run deficits. These rules were introduced under the title of the “Domestic Stability Pact” (DSP) and were binding for all municipalities. In 2001, to avoid imposing unbearable constraints on small municipalities, the central government removed the rules for municipalities with less than 5000 inhabitants. The 5000 threshold applied until 2013, when it was reduced to 1000.

Following the results of Chapter 1, I restrict the sample to the mayors elected under the new institutional framework created by the 2001 relaxation of fiscal rules. In addition to this, I conduct a separate empirical analysis of municipalities in the range 3000-5000 (i.e. municipalities not affected by fiscal rules starting from 2001) and municipalities in the range 5000-7000 (i.e. towns constrained by fiscal rules starting from 2001), to study how the absence or presence of fiscal rules shapes the behaviour of politicians with different levels of education.¹

¹At the same 5000 threshold, another policy changes, as the wage paid to the mayor is higher in municipalities above the threshold. This may represent an alternative channel that influences the behaviour of more educated mayors. In fact, differences in terms of policies between graduate mayors and non-graduate mayors, in municipalities below 5000, may be due to heterogeneous responses to the lower wage paid, rather than to the absence of fiscal rules. The same logic could work for municipalities above 5000, which pay

My overall research design uses two different methods: 1) a Regression Discontinuity Design (RDD), which compares municipalities in which a graduate candidate won by a narrow margin with municipalities in which a candidate with a college degree just lost; 2) Propensity-Score Matching on the subsample of close mixed electoral races between graduate and non-graduate candidates.

The first methodology used is a simple RDD approach which, under certain assumptions, allows me to address endogeneity issues and to isolate the causal effect of a mayor with a college degree. However, as described in Section 2.5, while all the available observable municipal characteristics are balanced in the RDD analysis, the same is not true for the individual characteristics of mayors. In fact, as described in Section 2.5, mayors with a college degree, compared to those without, tend to have less political experience, have a higher probability of coming from high skilled jobs and are more likely to be female.

This lack of balance in the set of individual covariates raises concerns about the reliability of my initial RDD estimates (Brollo and Troiano, 2016).

higher wages and are constrained by fiscal rules. However, the results in Gagliarducci and Nannicini (2013), who have studied the effect of wage using Italian data for the period 1993-2001 (i.e. a period during which fiscal rules applied in the same way in the two groups of municipalities), provide evidence that the wage should not represent a confounding factor: 1) the wage increase does not affect the deficit run by municipal governments, which is the main dependent variable used in this chapter; 2) high-paid mayors spend less and raise less revenues in comparison to low-paid ones. However, these results are driven by selection mechanisms rather than incentives (i.e. high-paid mayors are more educated). Thus, although I cannot completely rule out potential effects coming from this other policy, it seems reasonable to claim that differences in terms of policies between highly educated and less educated mayors in municipalities below 5000, compared to the same difference in those above 5000, can be attributed to incentives determined by the absence/presence of fiscal rules, rather than by the different wage paid.

To deal with this issue, I apply two solutions. Firstly, I re-run the baseline RDD model but include all the available unbalanced mayoral covariates. While this solution does not allow me to rule out the possibility that other unobservable characteristics are different between graduate and non-graduate mayors, finding that RDD estimates are unchanged after controlling for the unbalanced mayoral covariates does shut down a substantial source of potential bias.

The second solution follows the approach developed by Keele, Titiunik and Zubizarreta (2015) and Alesina, Cassidy and Troiano (2016). Specifically, I implement a Propensity-Score Matching strategy, which is run using the subsample of close mixed electoral competitions between graduate mayors and non-graduate ones. As described in more details in Section 2.4, this strategy allows me to estimate the average treatment effect of a mayor with a college degree, while controlling for the individual characteristics of the mayors. Besides that, as explained by Alesina, Cassidy and Troiano (2016), running the Propensity-Score Matching model on the sample of close mixed electoral competitions guarantees that municipal characteristics are balanced across locations with graduate mayors and those with non-graduate ones.

The main results of the chapter indicate that graduate mayors elected in municipalities not constrained by fiscal rules tend to run higher deficits compared to mayors without a college degree. In particular, in municipalities below 5000, mayors with a college degree tend to run average deficits which are around 2 % points higher as a fraction of total revenues. These higher deficits seem to be produced by reducing revenues more than expenditures.

On the other hand, I could not find any significant difference in terms of fiscal policies for municipalities constrained by fiscal rules (i.e. municipalities above 5000).

Furthermore, in this chapter I show that graduate mayors seem to be more career oriented, having a higher probability of being elected at the provincial level (i.e. the level of government immediately above municipalities)². It may be that they run higher deficits to pursue their career goals. The empirical evidence described in this chapter indicates that more educated politicians have stronger preferences for higher deficits. This may explain why, as reported in Chapter 1, more educated individuals are less likely to enter politics in institutional contexts constrained by fiscal rules. This reveals a potential drawback of fiscal rules, as they could make holding political office less attractive for more educated individuals.

In addition to this, Chapters 1 and 2 indicate that fiscal rules have two different effects on fiscal policies: 1) a direct effect on fiscal policies, given that municipalities constrained by fiscal rules run lower deficits (Grembi et al., 2016); and 2) an indirect effect, as the entry of politicians with stronger preferences for higher deficits is discouraged by fiscal rules. Thus, fiscal rules, besides directly constraining the deficit (Grembi et al., 2016), indirectly foster fiscal stability through the selection of politicians.

In conclusion, Chapters 1 and 2 suggest that fiscal rules have both positive and negative consequences. On the positive side, they promote stability in fiscal policies through both incentives and selection. On the negative side,

²In Italy there are five levels of government, which starting from the lower are: municipalities, provinces, regions and national and European parliaments.

fiscal rules deter the entry of individuals with a high level of education. These conclusions create opportunities for future research. In particular, it would be interesting to integrate and develop this analysis adding data on public goods production.

This chapter is in general connected to the empirical literature on how the personal characteristics of politicians affect policies. Among the characteristics analysed we can find: 1) education (Besley et al., 2011); 2) gender (Chattopadhyay and Duflo, 2004 ; Gagliarducci and Paserman, 2012; Ferreira and Gyourko 2014; Brollo and Troiano, 2016); 3) age (Alesina, Cassidy and Troiano, 2016); 4) political orientation (Pettersson-Lidbom, 2008; Ferreira and Gyourko, 2009); 5) the alignment effect between local and national governments (Brollo and Nannicini, 2012; Bracco et al. 2015) and 6) affiliation to national parties (Cioffi, Messina and Tommasino, 2012; Galindo-Silva, 2015; Aragon et al., 2015; Gamalerio, 2016). This chapter contributes to this literature by analysing the effect of politicians' education in a specific institutional framework in which fiscal rules do not apply. The results of this chapter also raise questions about whether highly educated politicians always benefit voters, especially when they are also more career oriented.

The closest paper to this is probably Gagliarducci and Nannicini (2013), who, using data on Italian municipalities, have shown that an increase in the wage paid to politicians may affect fiscal policies through the selection of more educated individuals. In comparison to their analysis, I study directly the effect of politicians' education on both fiscal policies and political career goals. Besides that, I also show that more educated politicians, if elected in

an institutional framework not constrained by fiscal rules, tend to run higher deficits in comparison to less educated ones.

Chapter 2 proceeds as follows. Section 2.2 describes the Italian institutional framework. Section 2.3 describes the data used in this chapter. Section 2.4 lays out the empirical strategy and Section 2.5 discusses the empirical results and the validity tests. Section 2.6 concludes.

2.2 Institutional Setting

In this chapter I use data on Italian municipalities. Italy has approximately 8000 municipalities, and the majority of them are small (around 70 % has less than 5000 inhabitants). Municipalities manage various services, including transport, welfare, environmental services, public utilities and municipal police. Around 10 % of total public expenditure is managed by municipal governments, while approximately 20 % of their revenue is generated through local taxes (transfers from the central government make up the total). The most important municipal taxes are the property tax and a surcharge on the personal income tax of residents.

This chapter studies the effect of mayors with a college degree on budget outcomes. The analysis is developed distinguishing between municipalities not affected by fiscal rules (i.e. towns in the range 3000-5000) and municipalities constrained by fiscal rules (i.e. towns in the interval 5000-7000).

Italian mayors are powerful political agents at the local level as they are directly elected by the voters and can appoint and dismiss the ministers who

work with them in the municipal government. The current municipal electoral law was introduced in 1993 (see Law 81 in 1993), and it prescribes different rules depending on the dimension of the municipality. In municipalities below 15,000 inhabitants, mayors are elected using a single round plurality rule, while a two-round system is used above the threshold. Mayors are elected for a maximum of two consecutive terms (i.e. they face a two-term limit), and a legislative term lasts for a maximum of 5 years.

Fiscal rules in Italy were introduced in 1999, following the European Stability and Growth Pact (SGP). These fiscal rules, called the “Domestic Stability Pact” (DSP), were introduced by the Italian government to establish a target for deficit reduction for all municipalities. In fact, the DSP has proved to be effective in reducing the deficits run by municipal governments (see Grembi et al., 2016). In 2001, the Italian government removed the rules for municipalities with less than 5000 inhabitants. This was to avoid constraining small municipalities, which have fewer economies of scale. This creates an interesting framework that can be used to compare the fiscal behaviour of graduate mayors with that of non-graduates.

2.3 Data

This chapter uses a dataset of information about all Italian municipalities with a population between 3000 and 7000 inhabitants. The data about municipal characteristics comes from the Italian Statistical Office (Istat), which provides information about the following features: 1) education of the mu-

nicipal population (e.g. fraction of the population with a university degree);
2) geographical characteristics such as area, longitude, latitude and altitude;
3) socio-economic indicators such as income per capita and number of firms;
4) other municipal characteristics such as density, the percentage of migrants and the average age of the population.

The data on municipal fiscal outcomes come from the Italian Ministry of Domestic Affairs and cover municipal expenditures and revenues for 2000-2012.

There is also information about the following characteristics of all municipal politicians elected between 2001 and 2012: education level, professional background, past political experience, gender and age. This information has been collected from the website of the Italian Ministry of Domestic Affairs.

In collecting and cleaning the data, I have also reconstructed the political careers of the mayors, using information from several sources. The information about political offices occupied at the local level has been collected from the website of the Italian Ministry of Domestic Affairs and the data about the offices occupied at National and European levels comes from the Italian and European parliaments³. All of the information has been cross-checked against information held by the independent association Openpolis⁴.

³Italian Parliament: <http://www.camera.it/> and <http://www.senato.it/home>. European parliament: <http://www.europarl.europa.eu/>.

⁴<http://www.openpolis.it/>

2.4 Empirical Strategy

2.4.1 Regression Discontinuity Design

This Chapter uses two different empirical strategies to estimate the effect of a mayor with a college degree on budget outcomes: the first is Regression Discontinuity Design (RDD), while the second is Propensity-Score Matching in close mixed electoral competitions.

Both strategies are meant to control for the fact that municipalities with graduate mayors are potentially different from municipalities with mayors with a lower level of education. Therefore, a simple OLS comparison between the two types of municipalities will likely produce biased estimates due to endogeneity issues. In fact, voters with different unobservable policy preferences are highly likely to vote for different types of mayor. An RDD analysis that exploits mixed electoral races between graduate and non-graduate mayors could be a possible solution to these problems.

In fact, it is reasonable to assume that in close mixed electoral competitions the electoral results are determined by random factors, rather than by unobservable idiosyncratic properties of the municipality that could also affect policies. Thus, if all the key RDD assumptions hold, municipalities where mayors with a college degree lost by a small margin can be used as a control group for municipalities where they barely won. Hence, under certain conditions, Regression Discontinuity Design makes it possible to control for observable and unobservable municipal characteristics and to get unbiased estimates of the parameter of interest.

In this chapter, following Calonico, Cattaneo and Titiunik (2014a, 2014b) and Gelman and Imbens (2014), I implement the following RDD strategy, which is estimated by local linear regression (LLR):

$$Y_{it} = \rho_0 + \rho_1 MV_{it} + \beta_0 C_{it} + \beta_1 C_{it} \cdot MV_{it} + \pi_0 X_{it} + \mu_t + \lambda_r + \eta_{it} \quad (2.1)$$

where λ_r are region fixed effects, μ_t electoral mandate fixed effects, and the dependent variable Y_{it} measures fiscal outcomes in municipality i at time t . The treatment is the dummy variable C_{it} , which is equal to 1 for mayors with a college degree and 0 otherwise. The margin of victory MV_{it} is calculated as the difference between the vote share of the graduate candidate minus the vote share of the non-graduate, and it uniquely individuates the assignment to treatment. When $MV_{it} = 0$, the level of education of the mayor sharply changes from 0 to 1, such that $C_{it} = 1$ and $MV_{it} > 0$ in towns in which the graduate candidate won and $C_{it} = 0$ and $MV_{it} < 0$ otherwise.

Model 2.1 is estimated on the subset of towns in the range $MV_{it} \in [-h, +h]$, where the optimal bandwidth h is calculated following Calonico, Cattaneo, and Titiunik (2014a, 2014b). The main parameter is β_0 , which captures the average treatment effect (ATE) of mayors with a college degree at the zero threshold $MV_{it} = 0$.

There are 3 main assumptions required for this identification to work properly: 1) there must be no sorting around the zero threshold $MV_{it} = 0$, such that voters in municipalities with narrow mixed electoral competitions are not able to manipulate the running variable MV_{it} . This is tested below

using the standard McCrary (2008) test on the continuity of the density of the running variable at the zero threshold $MV_{it} = 0$; 2) all the available observable municipal characteristics should vary smoothly at the zero threshold $MV_{it} = 0$. This assumption is required to guarantee that municipalities on one side of the threshold are a good counterfactual for municipalities on the other side of the cut-off; 3) all the available observable individual characteristics of the mayors should vary smoothly at the zero threshold $MV_{it} = 0$. This assumption is required to make sure that the estimated effect of the level of education of a mayor on budget outcomes is not due to other individual observable and unobservable characteristics.

Assumptions 2 and 3 are tested below running model 2.1 using municipal and mayoral characteristics as dependent variables. As we will see below, assumption 2 is not violated, as all the available observable municipal characteristics are balanced at the zero threshold $MV_{it} = 0$. The same does not apply for assumption 3, as some individual characteristics of the mayor are not balanced around the threshold.

The imbalance in individual covariates is raises suspicion that RDD-LLR estimates are not reliable (Brollo and Troiano, 2016). To deal with this issue I apply the following two solutions: 1) I run equation 2.1 including the available unbalanced mayoral covariates in X_{it} . This solution does not allow me to exclude that other unobservable characteristics change across the zero threshold $MV_{it} = 0$, but finding that RDD estimates are unchanged after controlling for unbalanced mayoral covariates mean that I can at least exclude that the estimated effect is due to these other characteristics which

are correlated with the level of education of the mayor. This should give some credibility to the RDD-LLR estimates; 2) following the recent development by Keele, Titiunik and Zubizarreta (2015) and Alesina, Cassidy and Troiano (2016), I implement a Propensity-Score Matching strategy, which is run using the subsample of close mixed electoral competitions. This is described in the next subsection.

2.4.2 Propensity-Score Matching in close elections

As explained in the previous subsection, the imbalance in individual covariates suggests that RDD-LLR estimates may not be reliable (Brollo and Troiano, 2016). This remains true even after running the RDD model controlling for the unbalanced mayoral covariates.

In this subsection, following the intuitions developed by Keele, Titiunik and Zubizarreta (2015) and Alesina, Cassidy and Troiano (2016), I apply an empirical strategy which exploits the exogenous variation in the treatment variable at municipal level generated by close mixed electoral competitions, while at the same time controlling for the unbalanced individual characteristics of the mayor.

This empirical strategy combines the RDD framework with Propensity-Score Matching. In particular, the idea is to estimate the average treatment effect of a graduate mayor on budget and political outcomes using Propensity-Score Matching on the subsample of mixed electoral competitions decided by a narrow margin of victory. In fact, as explained by Alesina, Cassidy and Troiano (2016), restricting the sample to mixed electoral competitions de-

cided by a small margin guarantees that observable and unobservable municipal characteristics are balanced across graduate and non-graduate mayors. At the same time, the Propensity-Score Matching enables control for the individual characteristics of the mayor which are unbalanced in the RDD setting. In practice the idea is to run the Propensity-Score Matching estimator on the subsample of close mixed electoral competitions controlling for as many individual mayoral covariates as possible.

The subsample used to implement this strategy is chosen to be within a certain window $MV_{it} \in [-h, +h]$ of the margin of victory of a graduate mayor. The value of h is chosen to balance the need to make sure that the treatment is independent of municipal characteristics with the need to have a sufficient number of observations. In this chapter for the main exercises I am using a value of $h = 4$ ⁵.

2.5 Results

2.5.1 Sample, descriptive statistics and balance tests

The main goal of this study is to understand whether politicians characterized by different levels of education make different choices in terms of fiscal policies and if they have different political career goals. The focus is on the comparison between politicians with a college degree and politicians without a university degree.

⁵As an alternative, I have run the same exercise using a value of $h = 3$, getting very similar results.

As previously mentioned, in this Chapter I use the same dataset as in Chapter 1. This includes the sample of Italian municipalities between 3000 and 7000 inhabitants for the electoral terms that go from 1993 to 2012. To develop the empirical analysis described below, I limit the sample to the electoral years starting from 2001. I do this because following the results described in Chapter 1, I want to evaluate the behaviour of mayors with a college degree compared to those without a college degree, after the 2001 removal of fiscal rules. Therefore the regression analysis below distinguishes between municipalities in the range 3000-5000 (i.e. municipalities not affected by fiscal rules starting from 2001) and in the range 5000-7000 (i.e. towns constrained by fiscal rules starting from 2001). This allows me to evaluate the behaviour of mayors with a college degree, compared to those without a degree, under different institutional frameworks. In particular, given the results found in Chapter 1, the goal is to understand whether more educated mayors elected in municipalities not constrained by fiscal rules (i.e. towns in the range 3000-5000) specifically entered the political arena to exploit the discretion and flexibility enabled by the absence of fiscal rules. In addition, looking at municipalities in the range 5000-7000, I can verify whether, where fiscal rules apply, more educated mayors cannot behave differently in comparison to less educated ones. Finally, I restrict the sample to mixed electoral races in which, irrespective of the total number of competitors, a candidate with a university degree runs against a candidate without a college degree.

This leaves me with a sample of 1500 mixed electoral competitions. Table 2.1 reports the summary statistics of these 1500 mixed electoral competitions,

distinguishing whether the elected mayor has a college degree or not.

Regression Discontinuity Design is based on the assumption that pre-determined covariates vary smoothly at the zero threshold $MV_{it} = 0$. To test for this assumption I run model 2.1 using municipal and mayoral characteristics as dependent variables. The results of the balance test on municipal characteristics can be found in Table 2.2 for municipalities between 3000 and 5000 inhabitants and in Table 2.3 for those between 5000 and 7000. The results for the balance tests on individual characteristics of the mayors can be found in Table 2.4 for both groups of municipalities. As already anticipated in Section 2.4, we can see from these tables that, while all municipal characteristics are balanced around the zero threshold $MV_{it} = 0$ in both groups of towns, the same is not true for the individual characteristics of the mayors. In fact, as described in Table 2.4, mayors with a college degree, compared to those without, tend to have less political experience, have a higher probability of coming from high skilled jobs and are more likely to be women. This imbalance of individual covariates is an issue for the RDD strategy (Brollo and Troiano, 2016). For this reason, in the empirical analysis below I apply the following two solutions, to verify the robustness of the RDD estimates: 1) I run equation 2.1 including the available unbalanced mayoral covariates, to check that these are not driving the eventual results; 2) following the recent development by Keele, Titiunik and Zubizarreta (2015) and Alesina, Cassidy and Troiano (2016), I implement a Propensity-Score Matching strategy, which uses the subsample of close mixed electoral competitions.

Finally, another important assumption of the RDD strategy is that voters

should not be able to manipulate the forcing variable MV_{it} around the zero threshold $MV_{it} = 0$. In this framework, this would mean that voters, in a tight mixed electoral competition, are perfectly able to choose between a mayor with a college degree and one without. This would invalidate the RDD identification strategy, because it would mean that the electoral outcome is not determined by random factors in competitions decided by a narrow margin. To test the validity of this assumption, in Figures 2.1 and 2.2 I run the McCrary (2008) test for the continuity of the density of the running variable MV_{it} around the zero threshold $MV_{it} = 0$. As we can see from Figures 2.1 and 2.2, there is no evidence of discontinuity at the zero threshold. This provides evidence about the absence of manipulation of the forcing variable MV_{it} on the part of voters.

2.5.2 The effect of a college degree on budget outcomes

In this subsection, I study the effect of mayors with a college degree on budget outcomes. The analysis is split between municipalities in the range 3000-5000 and municipalities in the interval 5000-7000. This allows me to evaluate the behaviour of mayors with a college degree, compared to those without a degree, under different institutional frameworks. In particular, given the results found in Chapter 1, the goal is to understand whether graduate mayors elected in municipalities not constrained by fiscal rules (i.e. in the range population 3000-5000) specifically entered the political arena in order to exploit the discretion and the flexibility guaranteed by the absence of fiscal rules. Besides that, with the analysis on the municipalities in the range 5000-7000, I can

verify whether, where fiscal rules apply, more educated mayors cannot behave differently in comparison to less educated ones.⁶

The main variable studied in this section is the average deficit run by a mayor during an entire legislature, which is one of the main fiscal outcomes affected by fiscal rules (Grembi et al., 2016). In the analysis the deficit is measured as a fraction of total municipal revenues. Besides that, in this section I also study the composition of the deficit, looking at how expenditures and revenues are affected by a mayor with a college degree, compared to one without it. This analysis uses two empirical strategies: 1) Regression Discontinuity Design; 2) Propensity-score matching on the sample of mixed electoral competitions.

The main results of the effect of a mayor with a university degree on the deficit are reported in Table 2.5 for municipalities in the range 3000-5000 and in Table 2.6 for municipalities in the interval 5000-7000. These are the estimates obtained by RDD. In both tables I report the following specifications: 1) a local linear regression (RDD-LLR) using the optimal bandwidth h cal-

⁶As already noted, the wage paid to the mayors is higher in municipalities above the 5000 threshold. This may be another factor that affects the behaviour of more educated mayors. However, the results of Gagliarducci and Nannicini (2013), who have studied the effect of wage using data on Italian municipalities between 1993 and 2001 (i.e. years during which fiscal rules were not applied differently across the 5000 threshold), seem to indicate that this should not be the case: 1) they show that the wage increase does not affect the deficit run by the mayors, which is the main dependent variable used in this Chapter. On the contrary, fiscal rules have been proved to be effective in reducing the deficit run by Italian municipalities (Grembi et al., 2016); 2) Gagliarducci and Nannicini (2013) show that high-paid mayors tend to spend less and raise less revenues in comparison to low-paid ones. However, they also show that these results are due to a selection effect (i.e. high-paid mayors are more educated), for which I am controlling, rather than to incentives. Thus, it seems reasonable to claim that any difference found in terms of fiscal policies between highly educated and less educated mayors in municipalities below 5000, if compared to the same difference in those above 5000, can be attributed to the incentives determined by the absence/presence of fiscal rules, rather than by the different wage paid.

culated following Calonico, Cattaneo, and Titiunik (2014a, 2014b) without covariates in column (1) and with covariates in column (4); 2) a local linear regression (RDD-LLR) without covariates using half ($h = 2$) and double ($2h$) of the optimal bandwidth in columns (2) and (3). This enables examination of how sensitive the estimates are to the choice of the bandwidth and control function.

As we can see from Table 2.5, all the specifications indicate that mayors with a college degree, compared to those without a college degree, tend to run an average deficit as a fraction of total revenues which is around 2 % points higher. This suggests that graduate mayors entered the political arena in the municipalities below 5000 to exploit the discretion and the flexibility allowed by the absence of fiscal rules. This is consistent with results in Chapter 1, where I showed that municipalities not constrained by fiscal rules tend to be more attractive for graduate individuals.

In Table 2.6, I repeat the same exercise for municipalities in the range 5000-7000 (i.e. municipalities not constrained by fiscal rules). As we can see, in these municipalities there are no differences between graduate mayors and non-graduate ones. This result is also consistent with Chapter 1, which show that municipalities above 5000, compared to those below, became less attractive after the imposition of fiscal rules.

In both Tables 2.5 and 2.6, it is reassuring to see that the estimates are completely unaffected by the introduction of the imbalance in individual characteristics of the mayors. This can be seen comparing columns (1) and (4) of both tables.

In Tables 2.7 and 2.8, I study the composition of the deficit. In particular, in Table 2.7 I evaluate the effect of a mayor with a college degree on expenditures, while in Table 2.8 I repeat the same exercise for revenues. In both tables, Panel A reports the results for municipalities in the range 3000-5000, and Panel B, municipalities in the interval 5000-7000. For all variables I report a RDD-LLR specification using the optimal bandwidth h calculated following Calonico, Cattaneo, and Titiunik (2014a, 2014b) with covariates. In particular, I am using the optimal CCT bandwidth calculated for the deficit, as the goal of this table is to understand how the deficit is composed.⁷ All variables are in logarithms and measured at per capita level and in real term 2010 prices.

Starting from the municipalities above 5000, we can see how mayors with a college degree tend to reduce both total expenditures and total revenues by a similar amount, however no one of the estimated coefficients is statistically different from zero. This is consistent with the results found for the deficit. On the other hand, we can see how in municipalities below the 5000 threshold mayors with a college degree tend to cut both total expenditures and total revenues. In particular, the higher deficit produced seems to be obtained by cutting revenues more than expenditures. Finally, it is not completely clear from the results in Tables 2.7 and 2.8 how total expenditures and revenues are reduced by mayors with a college degree, as all the coefficients are negative but not statistically different from zero.

To further verify the robustness of these results I repeat these empiri-

⁷Results do not change if in the alternative I use the specific optimal bandwidths calculated for each budget outcome.

cal exercises using Propensity-score matching. In particular, I estimate the average treatment effect of a mayor with a college degree running Propensity-score matching on the subsample of mixed electoral competitions decided by a margin of victory of four or less. Table 2.9 reports the estimated coefficients for municipalities in the range 3000-5000, while Table 2.10 for those in the interval 5000-7000. Panel A of both tables reports the results for deficit and expenditures, and Panel B for revenues.

As we can see, Table 2.10 confirms the same results obtained through the RDD analysis: in municipalities in the range 5000-7000 there are no differences in terms of fiscal policies between graduate mayors and non-graduate ones.

The results in Table 2.9 confirm and go in the same direction of those found by RDD for municipalities in the interval 3000-5000. In particular, the following patterns seem to emerge from Table 2.9: 1) mayors with a college degree tend to run higher deficits compared to those without a college degree; 2) The higher deficit is obtained by cutting total revenues more than total expenditures; 3) the reduction of total expenditures is obtained by cutting current expenditures; 4) the reduction in total revenues is obtained by reducing taxes and fees on public services. All these results seem to confirm that that graduate mayors entered the political arena in the municipalities below 5000 in order to exploit the discretion and the flexibility allowed by the absence of fiscal rules.

2.5.3 The effect of a college degree on political career outcomes

This subsection provides evidence about the political career paths of mayors with a college degree, compared to those without a degree. In fact, finding that the two types of mayors have different political career paths may help to explain why they make different choices in terms of fiscal policies. In this subsection, I use the following four dependent variables: 1) a dummy variable equal to one for mayors that continue their career at municipal level; 2) a dummy variable for those elected at provincial level; 3) a dummy variable for those elected at regional level; 4) a dummy variable for mayors promoted at national level.⁸

The analysis in this subsection uses the entire sample of municipalities between 3000 and 7000, without dividing the towns in two groups. Table 2.1 shows that a small proportion of mayors in small Italian municipalities are promoted to higher levels of government. This makes it difficult to analyse a sample of mixed electoral competitions decided by a narrow margin. In particular, as the dependent variables used in this subsection are all dummy variables, it is difficult, after restricting the sample to tight electoral races, to find a sufficient number of observations for which the career dummy variables are equal to one. It becomes much more difficult to estimate precisely the effect of a mayor with a college degree on political careers. For this reason, I

⁸In Italy there are five levels of government: municipalities, provinces, regions, national parliament and European parliament. I am excluding the European level from this analysis because it is very difficult to find mayors of small municipalities that are promoted to that level.

keep all the observations together to increase precision in the estimates.⁹

As in Subsection 2.5.2, the analysis uses RDD and Propensity-score matching. The results of the RDD estimates are reported in Table 2.11, while those of Propensity score matching are in Table 2.12. Both tables have four columns, one for each level of political career.

Both Tables 2.11 and 2.12 tell the same story: while there are no differences in terms of political careers at municipal, regional or national level, mayors with a college degree tend to have a higher probability of being elected at the provincial level. This is a sensible result, as the provincial level is just above the municipal level, so it makes sense for mayors of small municipalities to try to be promoted at that level. This result is consistent with the results of Alesina, Cassidy and Troiano (2016), who have found that young mayors tend to be promoted more at the provincial level.

In conclusion, graduate mayors have a higher probability of having a political career. In particular, they have a higher probability of being elected at the provincial level, the level immediately above municipalities. This may explain why the two types of mayors make different choices in terms of fiscal policies, especially in municipalities not constrained by fiscal rules. Mayors with a higher level of education appear to be more career oriented. For this reason, they may prefer to be elected to roles that allow them a certain level of flexibility and discretion, which can be used to pursue a political career.

⁹Another issue is that in some cases it is not possible at all to run a regression. For example, it is impossible to run regressions on close mixed electoral competitions for the municipalities above 5000 using the promotion at regional or national level as dependent variables. This is because, in those tight mixed electoral competitions, the number of mayors promoted at those levels of politics is zero.

This suggests that graduate mayors, in municipalities not constrained by fiscal rules, run higher deficits to increase their popularity and pursue a political career. Finally, this is also consistent with the results in Chapter 1, in which I show that municipalities not constrained by fiscal rules tend to be more attractive for graduates.

2.6 Conclusion

In this chapter I investigate the fiscal implications of educated versus non-educated political leaders. Using data on Italian municipalities, I study whether mayors with a college degree affect fiscal policies in a different way.

The motivation for this analysis comes from the results of Chapter 1, which shows that fiscal rules negatively affects the quality of the political class, and in particular politicians' education level.

The empirical analysis uses data on Italian municipalities for the electoral terms from 2001 to 2012 and it distinguishes between municipalities not affected by fiscal rules (i.e. those in the range 3000-5000) and municipalities constrained by fiscal rules (i.e. those in the interval 5000-7000).

I use two different methodologies: 1) Regression Discontinuity Design and 2) Propensity-Score Matching. Both methodologies are developed using the subsample of tight mixed electoral races.

The main results show that graduate mayors elected in municipalities not constrained by fiscal rules run higher deficits. In particular, in municipalities below 5000, graduate mayors run average deficits as a fraction of total rev-

enues which are around 2 % points higher. These higher deficits are obtained reducing revenues more than expenditures. I could not find any significant difference in terms of fiscal policies for municipalities constrained by fiscal rules (i.e. those above 5000).

Furthermore, graduate mayors appear to be more career oriented, as they have a higher probability of being elected at the provincial level. This suggests that they may run higher deficits to advance their career.

Therefore, the evidence in chapter 2 indicates that educated politicians have stronger preferences for higher deficits. This may explain why educated individuals have a lower probability to enter politics where fiscal rules apply. This is a potential drawback of fiscal rules, which appear to make holding political office less attractive for educated persons.

In addition to this, the results of Chapters 1 and 2 indicate that fiscal rules have two effects on fiscal policies: 1) a direct effect, as municipalities constrained by fiscal rules run lower deficits (Grembi et al., 2016); and 2) an indirect effect, as fiscal rules deter the entry of individuals who prefer to run higher deficits.

In conclusion, the results of Chapters 1 and 2 suggest both positive and negative consequences of fiscal rules: first, fiscal rules have a positive effect on fiscal stability, through both incentives and selection; second, fiscal rules have a negative effect on the selection of politicians, as they make more educated individuals less likely to enter politics. These conclusions create opportunities for future research, as it would be interesting to complete the analysis with data on public goods production.

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Table 2.1: Descriptive statistics:
College vs. No College

	(1) <i>College</i>	(2) <i>obs</i>	(3) <i>No College</i>	(4) <i>obs</i>	(5) <i>p-value</i>
<i>Budget outcomes</i>					
Deficit	0.011	745	0.011	749	0.930
Capital expenditures	331.522	745	359.284	749	0.131
Current expenditures	713.328	745	719.998	749	0.603
Total expenditures	1238.730	745	1276.894	749	0.192
Fee revenues	175.551	745	173.347	749	0.794
Capital grants	134.884	745	163.756	749	0.036
Current grants	172.182	745	175.536	749	0.533
Other taxes	93.549	745	95.227	749	0.619
Property and Income taxes	283.660	745	289.944	749	0.407
Total revnues	1228.730	745	1264.756	749	0.221
<i>Political career outcomes</i>					
Elected national level	0.006	748	0.003	752	0.473
Elected regional level	0.014	748	0.010	752	0.481
Elected provincial level	0.049	748	0.063	752	0.229
Elected municipal level	0.545	748	0.519	752	0.322
<i>Mayoral characteristics</i>					
# candidates	2.803	748	2.787	752	0.718
# council seats	10.435	748	10.601	752	0.019
National party	0.340	748	0.402	752	0.012
Political experience	6.419	748	8.559	752	0.000
Skill job	0.500	748	0.122	752	0.000
Unemployed	0.069	748	0.163	752	0.000
Female	0.122	748	0.085	752	0.016
Age	48.073	748	50.083	752	0.000
<i>Municipal characteristics</i>					
Longitude	11.965	748	11.903	752	0.658
Latitude	43.580	748	43.636	752	0.632
Altitude	268.162	748	266.410	752	0.879
Area	36.674	748	36.254	752	0.837
South	0.284	748	0.261	752	0.322
Centre	0.153	748	0.171	752	0.350
North-West	0.342	748	0.351	752	0.719
North-East	0.219	748	0.215	752	0.857
Population	4560.799	748	4577.346	752	0.777
Past deficit	0.014	748	0.015	751	0.653
Income	13372.060	739	13539.020	742	0.243
% foreign	0.0751	748	0.075	752	0.741
Population density	338.816	748	351.078	752	0.600
% 65	0.186	748	0.187	752	0.504
% 15-64	0.669	748	0.669	752	0.659
% 0-18	0.186	748	0.185	752	0.478
<i>Education municipal population</i>					
% college	0.075	748	0.075	752	0.677
% high secondary	0.289	748	0.289	752	0.790
% low secondary	0.314	748	0.315	752	0.577
% primary	0.221	748	0.221	752	0.905
% illiterate	0.012	748	0.012	752	0.289

Notes. Municipalities between 3000 and 7000. Electoral terms between 2001 and 2012. *College* = 1 for a Mayor with a college degree, *No College* = 1 for a Mayor without a college degree. Columns (1) and (3) report the mean values for the two samples; *obs* is the number of observations; *p-value* is the p-value of the difference between the means of the two samples.

Table 2.2: Balance test on municipal covariates:
Municipalities between 3000-5000 inhabitants

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A: Education municipal population</i>								
<i>College</i>	% illiterate 0.001 (0.002)	% primary 0.001 (0.006)	% low secondary -0.003 (0.006)	% high secondary -0.003 (0.006)	% university degree -0.000 (0.003)			
Bandwidth Observations	17.93 552	14.53 476	14.91 491	15.49 506	13.12 442			
<i>Panel B: Characteristics municipal population</i>								
<i>College</i>	% 0-18 0.005 (0.005)	% 15-64 0.003 (0.006)	% 65+ -0.005 (0.008)	population density -25.454 (64.366)	% foreign 0.001 (0.009)	(log) income per capita -0.048 (0.037)	past deficit -0.000 (0.006)	population 7.459 (118.963)
Bandwidth Observations	15.92 511	12.69 430	14.14 469	14.59 480	14.51 417	13.99 467	14.51 476	12.14 418
<i>Panel C: Geographical characteristics municipalities</i>								
<i>College</i>	NE 0.015 (0.070)	NW -0.078 (0.086)	CEN -0.026 (0.078)	SOU 0.073 (0.072)	area 6.103 (6.882)	altitude -36.896 (44.044)	latitude -0.270 (0.410)	longitude 0.502 (0.444)
Bandwidth Observations	13.19 443	12.72 431	12.80 435	19.41 586	15.23 497	12.06 417	14.11 469	15.54 508

Notes. Municipalities between 3000 and 5000. Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. All specifications include a linear control for the margin of victory of a mayor with a college degree on each side of the discontinuity and the optimal bandwidth h . Robust standard errors clustered by municipality are in parentheses. Term FE included in all columns. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 2.3: Balance test on municipal covariates:
Municipalities between 5000-7000 inhabitants

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A: Education municipal population</i>								
<i>College</i>	% illiterate 0.001 (0.002)	% primary 0.005 (0.008)	% low secondary 0.000 (0.009)	% high secondary 0.001 (0.009)	% university degree			
Bandwidth Observations	16.47 281	11.22 212	12.01 222	11.73 217				
<i>Panel B: Characteristics municipal population</i>								
<i>College</i>	% 0-18 -0.003 (0.010)	% 15-64 0.005 (0.008)	% 65+ 0.001 (0.011)	population density 106.928 (120.476)	% foreign 0.008 (0.011)	(log) income per capita 0.008 (0.055)	past deficit -0.002 (0.006)	population 165.324 (146.084)
Bandwidth Observations	10.78 207	11.58 215	12.25 226	11.01 211	12.75 235	11.59 216	9.686 185	12.38 228
<i>Panel C: Geographical characteristics municipalities</i>								
<i>College</i>	NE 0.015 (0.093)	NW 0.059 (0.132)	CEN 0.047 (0.079)	SOU -0.110 (0.122)	area -11.928 (11.455)	altitude -1.282 (52.304)	latitude 0.148 (0.597)	longitude -0.682 (0.743)
Bandwidth Observations	11.75 217	12.19 226	15.01 263	11.24 212	12.99 236	15.97 273	12.35 228	10.79 209

Notes. Municipalities between 5000 and 7000. Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. All specifications include a linear control for the margin of victory of a mayor with a college degree on each side of the discontinuity and the optimal bandwidth h . Robust standard errors clustered by municipality are in parentheses. Term FE included in all columns. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 2.4: Balance test on mayoral covariates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A: Municipalities between 3000-5000 inhabitants</i>								
	female	age	unemployed	skill job	political experience	national party	# seats	# candidates
<i>College</i>	0.125** (0.056)	-0.841 (1.589)	-0.079 (0.061)	0.525*** (0.079)	-3.320*** (1.225)	-0.116 (0.081)	0.016 (0.036)	-0.088 (0.177)
Bandwidth	14.12	18.18	15.02	11.77	15.51	13.15	14.52	12.27
Observations	469	557	495	407	507	442	476	424
<i>Panel B: Municipalities between 5000-7000 inhabitants</i>								
	female	age	unemployed	skill job	political experience	national party	# seats	# candidates
<i>College</i>	0.018 (0.085)	-2.760 (2.251)	-0.021 (0.073)	0.419*** (0.103)	-3.661** (1.660)	-0.015 (0.127)	0.070* (0.040)	-0.116 (0.240)
Bandwidth	9.447	17.48	15.63	13.35	11.14	10.23	16.83	16.64
Observations	180	290	271	242	212	193	286	283

Notes. Municipalities between 3000-5000 inhabitants in Panel A, between 5000-7000 in Panel B. Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. All specifications include a linear control for the margin of victory of a mayor with a college degree on each side of the discontinuity and the optimal bandwidth h . Robust standard errors clustered by municipality are in parentheses. Term FE included in all columns. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 2.5: The effect of college on deficit, RDD estimates:
Municipalities below 5000

	(1)	(2)	(3)	(4)
<i>Outcome: Average deficit as a fraction of total revenues</i>				
Control Function	Linear	Linear	Quadratic	Linear
Bandwidth	h	$h/2$	$2h$	h
Mayoral Covariates	No	No	No	Yes
<i>College</i>	0.020*** (0.008)	0.021** (0.011)	0.024*** (0.008)	0.021** (0.010)
Bandwidth	7.018	3.509	14.04	7.018
Observations	267	131	467	267

Notes. Municipalities between 3000-5000 . Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Term FE included in all columns. Region FE included in column (4). Mayoral covariates included in column (4): female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; political experience = years of past political experience of the mayor at any level of politics; national party = 1 if mayor affiliated to national political party; # candidates = number of candidates at municipal elections; # seats = number of seats in the municipal council occupied by the mayor's coalition. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 2.6: The effect of college on deficit, RDD estimates:
Municipalities between 5000-7000 inhabitants

	(1)	(2)	(3)	(4)
<i>Outcome: Average deficit as a fraction of total revenues</i>				
Control Function	Linear	Linear	Quadratic	Linear
Bandwidth	h	$h/2$	$2h$	h
Mayoral Covariates	No	No	No	Yes
<i>College</i>	-0.001 (0.008)	-0.011 (0.012)	-0.000 (0.008)	-0.004 (0.008)
Bandwidth	13.97	6.984	27.94	13.97
Observations	250	135	392	250

Notes. Municipalities between 5000-7000 . Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Term FE included in all columns. Region FE included in column (4). Mayoral covariates included in column (4): female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; political experience = years of past political experience of the mayor at any level of politics; national party = 1 if mayor affiliated to national political party; # candidates = number of candidates at municipal elections; # seats = number of seats in the municipal council occupied by the mayor's coalition. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 2.7: The effect of college on expenditures, RDD estimates

	(1)	(2)	(3)
<i>Panel A: Municipalities between 3000-5000</i>			
Outcome	Total expenditures	Capital expenditures	Current expenditures
<i>College</i>	-0.156* (0.092)	-0.106 (0.069)	-0.094 (0.183)
Bandwidth	7.018	7.018	7.018
Observations	267	267	267
<i>Panel B: Municipalities between 5000-7000</i>			
Outcome	Total expenditures	Capital expenditures	Current expenditures
<i>College</i>	-0.113 (0.083)	-0.074 (0.076)	-0.202 (0.186)
Bandwidth	13.97	13.97	13.97
Observations	250	250	250

Notes. Municipalities between 3000-7000 . Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Term and Region FE included in all columns. Definition dependent variables: Total expenditures = log of total expenditures per capita; Capital expenditures = log of capital expenditures per capita; Current expenditures = log of current expenditures per capita. Mayoral covariates included in all columns: female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; political experience = years of past political experience of the mayor at any level of politics; national party = 1 if mayor affiliated to national political party; # candidates = number of candidates at municipal elections; # seats = number of seats in the municipal council occupied by the mayor's coalition. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 2.8: The effect of college on revenues, RDD estimates

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: Municipalities between 3000-5000</i>						
Outcome	Total revenues	Property and income taxes	Other taxes	Current grants	Capital grants	Fee revenues
<i>College</i>	-0.178* (0.092)	-0.140 (0.102)	-0.183 (0.224)	-0.106 (0.118)	-0.015 (0.347)	-0.084 (0.178)
Bandwidth	7.018	7.018	7.018	7.018	7.018	7.018
Observations	267	267	267	267	267	267
<i>Panel B: Municipalities between 5000-7000</i>						
Outcome	Total revenues	Property and income taxes	Other taxes	Current grants	Capital grants	Fee revenues
<i>College</i>	-0.109 (0.084)	-0.082 (0.078)	-0.326 (0.375)	-0.012 (0.131)	-0.294 (0.361)	-0.107 (0.135)
Bandwidth	13.97	13.97	13.97	13.97	13.97	13.97
Observations	250	250	250	250	250	250

Notes. Municipalities between 3000-7000 . Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Term and Region FE included in all columns. Definition dependent variables: Total revenues = log of total municipal revenues per capita; Property and income taxes = log of property+income taxes raised by the mayor; Other taxes = log of all other local taxes raised by the mayor; Current grants = log of current grants from higher levels of government; Capital grants = log of capital grants from higher levels of government; Fee revenues = fees paid for public services. Mayoral covariates included in all columns: female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; political experience = years of past political experience of the mayor at any level of politics; national party = 1 if mayor affiliated to national political party; # candidates = number of candidates at municipal elections; # seats = number of seats in the municipal council occupied by the mayor's coalition. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by * , at the 5% level by ** , and at the 1% level by ***.

Table 2.9: The effect of college on fiscal outcomes, Propensity score matching estimates:
Municipalities between 3000-5000

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome	Deficit	Total expenditures	<i>Panel A: Deficit + Expenditures</i>		Capital expenditures	
<i>College</i>	0.021** (0.009)	-0.134** (0.057)	-0.071* (0.043)	0.072 (0.118)		
Observations	151	151	151	151		
Outcome	Total revenues	Property and income taxes	<i>Panel B: Revenues</i>		Current grants	Fee revenues
<i>College</i>	-0.155** (0.060)	-0.101 (0.096)	-0.303** (0.130)	0.156 (0.111)	0.222 (0.219)	-0.174* (0.101)
Observations	151	151	151	151	151	151

Notes. Municipalities between 3000-5000 . Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Propensity-score matching estimates of the average treatment effect of a mayor with a college degree, obtained using the sample of mixed electoral competitions decided by a margin of victory of four or less. Propensity score estimated using a logistic model. Definition dependent variables Panel A: deficit = average deficit as a fraction of total revenues; Total expenditures = log of total expenditures per capita; Capital expenditures = log of capital expenditures per capita; Current expenditures = log of current expenditures per capita. Definition dependent variables Panel B: Total revenues = log of total municipal revenues per capita; Property and income taxes = log of property+ income taxes raised by the mayor; Other taxes = log of all other local taxes raised by the mayor; Current grants = log of current grants from higher levels of government; Capital grants = log of capital grants from higher levels of government; Fee revenues = fees paid for public services. Mayoral covariates included in all columns: female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; political experience = years of past political experience of the mayor at any level of politics; national party = 1 if mayor affiliated to national political party; # candidates = number of candidates at municipal elections; # seats = number of seats in the municipal council occupied by the mayor's coalition. Heteroskedasticity-robust standard errors calculated according to Abadie and Imbens (2015). Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 2.10: The effect of college on fiscal outcomes, Propensity score matching estimates:
Municipalities between 5000-7000

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: Deficit + Expenditures</i>						
Outcome	Deficit	Total expenditures	Current expenditures	Capital expenditures		
<i>College</i>	0.006 (0.010)	-0.045 (0.068)	0.031 (0.063)	-0.070 (0.131)		
Observations	86	86	86	86		
<i>Panel B: Revenues</i>						
Outcome	Total revenues	Property and income taxes	Other taxes	Current grants	Capital grants	Fee revenues
<i>College</i>	-0.051 (0.068)	-0.124 (0.109)	0.346 (0.357)	0.201 (0.284)	-0.360 (0.384)	0.144 (0.104)
Observations	86	86	86	86	86	86

Notes. Municipalities between 5000-7000 . Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Propensity-score matching estimates of the average treatment effect of a mayor with a college degree, obtained using the sample of mixed electoral competitions decided by a margin of victory of four or less. Propensity score estimated using a logistic model. Definition dependent variables Panel A: deficit = average deficit as a fraction of total revenues; Total expenditures = log of total expenditures per capita; Capital expenditures = log of capital expenditures per capita; Current expenditures = log of current expenditures per capita. Definition dependent variables Panel B: Total revenues = log of total municipal revenues per capita; Property and income taxes = log of property+ income taxes raised by the mayor; Other taxes = log of all other local taxes raised by the mayor; Current grants = log of current grants from higher levels of government; Capital grants = log of capital grants from higher levels of government; Fee revenues = fees paid for public services. Mayoral covariates included in all columns: female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; political experience = years of past political experience of the mayor at any level of politics; national party = 1 if mayor affiliated to national political party; # candidates = number of candidates at municipal elections; # seats = number of seats in the municipal council occupied by the mayor's coalition. Heteroskedasticity-robust standard errors calculated according to Abadie and Imbens (2015). Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 2.11: The effect of college on political career, RDD estimates

	(1)	(2)	(3)	(4)
<i>Outcome: Future political career</i>				
Outcome	=1 if elected municipal level	=1 if elected provincial level	=1 if elected regional level	=1 if elected national level
<i>College</i>	0.082 (0.063)	0.076** (0.029)	-0.005 (0.009)	-0.011 (0.008)
Bandwidth	17.23	9.973	11.85	7.961
Observations	831	542	632	452

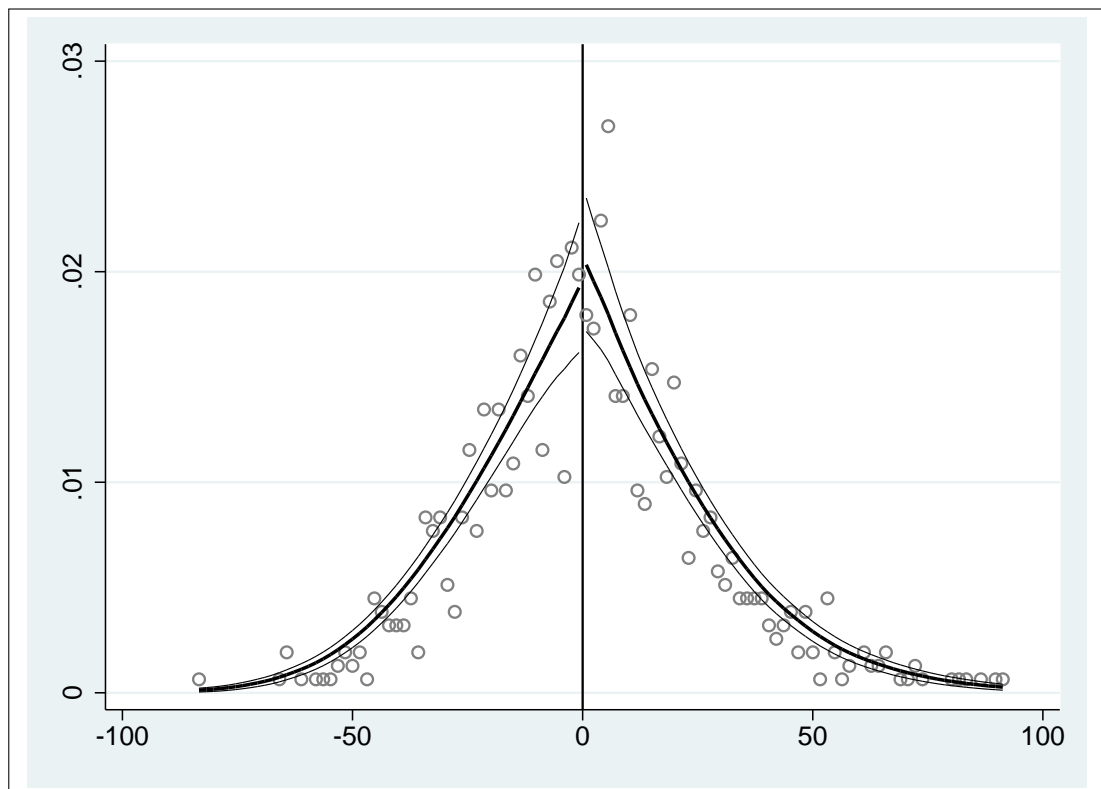
Notes. Municipalities between 3000-7000 . Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Term and Region FE included in all columns. Definition dependent variables: column (1) =1 if mayor elected at the municipal level of government after the experience as a mayor at any point in time; column (2) =1 if mayor elected at the provincial level of government after the experience as a mayor at any point in time; column (3) =1 if mayor elected at the regional level of government after the experience as a mayor at any point in time; column (4) =1 if mayor elected at the national level of government after the experience as a mayor at any point in time. Mayoral covariates included in all columns: female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; political experience = years of past political experience of the mayor at any level of politics; national party = 1 if mayor affiliated to national political party; # candidates = number of candidates at municipal elections; # seats = number of seats in the municipal council occupied by the mayor's coalition. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 2.12: The effect of college on political career, Propensity score matching estimates

	(1)	(2)	(3)	(4)
<i>Outcome: Future political career</i>				
Outcome	=1 if elected municipal level	=1 if elected provincial level	=1 if elected regional level	=1 if elected national level
<i>College</i>	-0.013 (0.098)	0.059** (0.028)	0.000 (0.006)	0.000 (0.000)
Observations	237	237	237	237

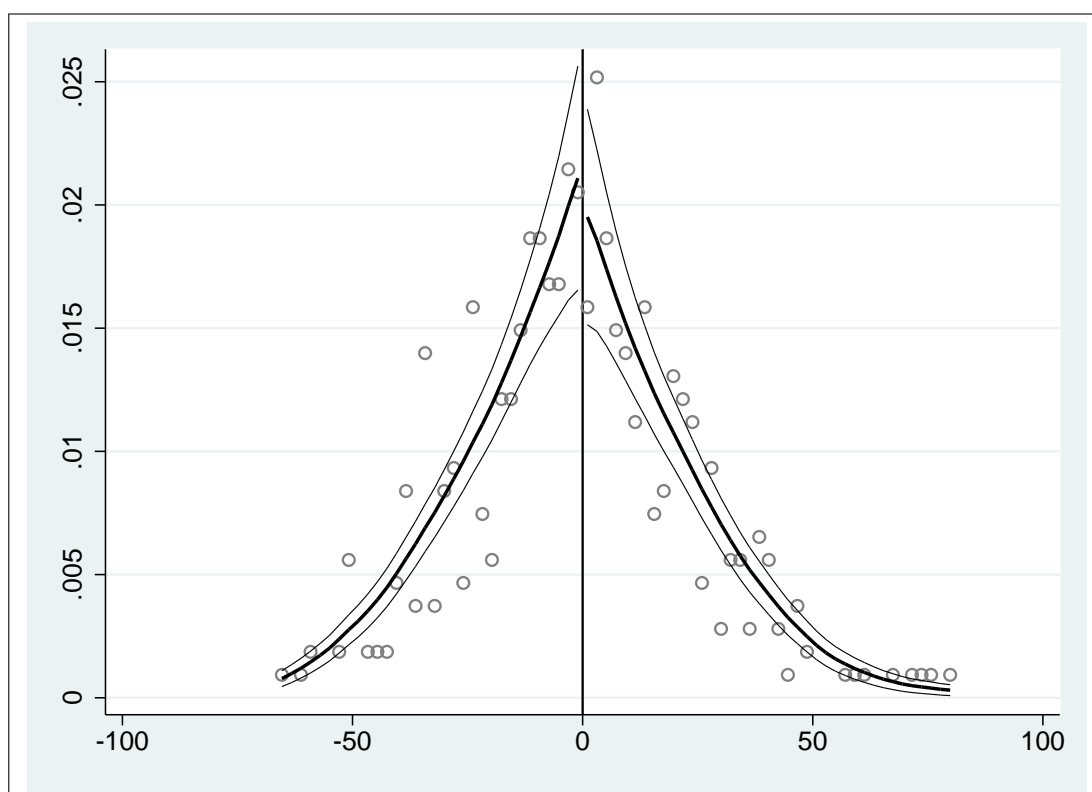
Notes. Municipalities between 3000-7000 . Electoral terms between 2001 and 2012. Treatment variable: *College* is a dummy variable =1 when the mayor has a university degree, 0 otherwise. Propensity-score matching estimates of the average treatment effect of a mayor with a college degree, obtained using the sample of mixed electoral competitions decided by a margin of victory of four or less. Propensity score estimated using a logistic model. Definition dependent variables: column (1) =1 if mayor elected at the municipal level of government after the experience as a mayor at any point in time; column (2) =1 if mayor elected at the provincial level of government after the experience as a mayor at any point in time; column (3) =1 if mayor elected at the regional level of government after the experience as a mayor at any point in time; column (4) =1 if mayor elected at the national level of government after the experience as a mayor at any point in time. Mayoral covariates included in all columns: female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; political experience = years of past political experience of the mayor at any level of politics; national party = 1 if mayor affiliated to national political party; # candidates = number of candidates at municipal elections; # seats = number of seats in the municipal council occupied by the mayor's coalition. Heteroskedasticity-robust standard errors calculated according to Abadie and Imbens (2015). Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Figure 2.1: McCrary (2008) test on the margin of victory, municipalities between 3000-5000



Notes. Municipal elections between 2001 and 2012. Municipalities between 3000 and 5000 inhabitants. Horizontal axis: margin of victory MV_{it} of a candidates with a college degree vs. a candidate without a college degree. Vertical axis: density of the margin of victory MV_{it} . $MV_{it} > 0$ when the winning candidate has a college degree, $MV_{it} < 0$ when the winning does not have a college degree. Discontinuity estimate: point estimate 0.056, standard error 0.118 and t-statistic 0.474.

Figure 2.2: McCrary (2008) test on the margin of victory, municipalities between 5000-7000



Notes. Municipal elections between 2001 and 2012. Municipalities between 5000 and 7000 inhabitants. Horizontal axis: margin of victory MV_{it} of a candidates with a college degree vs. a candidate without a college degree. Vertical axis: density of the margin of victory MV_{it} . $MV_{it} > 0$ when the winning candidate has a college degree, $MV_{it} < 0$ when the winning does not have a college degree. Discontinuity estimate: point estimate -0.077, standard error 0.168 and t-statistic -0.462.

Chapter 3

Do national political parties matter? Evidence from Italian municipalities

Abstract

Recently several countries have experienced a drop in popularity of national political parties, accompanied by the success of independent movements (e.g. “Civic Lists” in Italy). I exploit the success of “Civic Lists” in Italian municipalities and use them as a comparison group for party-affiliated politicians, to test whether national parties affect fiscal discipline. In particular, using a Regression Discontinuity Design (RDD), I show that party-affiliated mayors are more fiscally responsible: they run lower deficits, accumulate less debt and reduce expenditures. The effect is significant only for municipalities not constrained by fiscal rules. This suggests that national parties act as a substitute for fiscal rules in constraining politicians. Besides that, I provide evidence that the discipline of party-affiliated politicians is linked to better career prospects: party-affiliated mayors have a higher probability of being re-elected and better chances of being promoted to higher levels of govern-

ment. Finally, the results are not driven by political orientation, alignment with the central government, the presence of criminal organizations nor by unobserved political ability.

3.1 Introduction

In recent years many countries have seen a decline in the popularity of national political parties, which are perceived as distant from the needs of voters. At the same time new political organizations and independent movements have started to threaten their power. Famous examples at the national level are Podemos in Spain, Syriza in Greece, Ukip in the UK and the Five Stars Movement in Italy. The same thing is happening at the local level, as in many countries independent local organizations without links to national parties are now able to compete and to nominate candidates. Examples of independent local politicians can be found in both developed countries (e.g. Germany, as described by Koethenbuerger, 2012) and developing countries (e.g. Peru, as described by Aragon et al. 2015).

The success of these independent organizations raises questions about the importance and the role of national political parties. In regards to this, the main argument that can be found in the literature (Riker, 1964; Enikolopov and Zhuravskaya, 2007; Ponce-Rodriguez et al., 2012) is that national parties are able to discipline politicians by affecting their career prospects. However - despite the importance of this topic - only a few studies (Koethenbuerger, 2012; Folke, 2014; Aragon et al. 2015) have tried to compare the behaviour of party-affiliated politicians with that of independents, as a test for the

disciplining role of national parties. The general evidence from this literature, which is mainly focused on fiscal policies, is that party-affiliated politicians do not behave differently from independent ones, raising doubts about the ability of national parties to discipline politicians. However, some of these studies (Koethenbuerger, 2012; Folke, 2014) are more focused on the behaviour of local councillors, whose limited power, if compared to local governments, may explain the lack of difference between party-affiliated politicians and independents. Also, as in the case of Aragon et al. 2015, local governments are very often subject to fiscal rules that constrain their capacity to collect taxes and incur debt.

In this chapter, I take advantage of the success of local independent movements ("Civic Lists") in Italian municipalities which, after the introduction of the direct election of the mayor in 1993, have been able to elect a vast number of mayors completely independent of national parties. In fact, as we can see in Figure 3.1, the percentage of mayors affiliated to national political parties has declined significantly in recent years in Italian municipalities.¹

This offers an interesting framework that can be used to test whether national political parties are able to discipline politicians by affecting their career concerns by comparing party-affiliated and independent mayors. I also exploit the fact that, from 2001, Italian municipalities below 5000 inhabitants were not subject to fiscal rules, which have been effective in limiting the capacity of municipal governments to run deficits and accumulate debt

¹In Figure 3.1, I am using the sample of municipalities below 15000. The reason is, as described in more detail below, all the regression analysis in this chapter uses this sample of municipalities.

(Grembi et al., 2016).

The focus is on municipal budget outcomes, with special attention to fiscal discipline, which represents a local outcome with national relevance, given that fiscally undisciplined local governments generate negative externalities for the rest of the country. This is typically the case in decentralized countries in which local governments, largely financed through grants from higher levels of government, may not entirely internalize the cost of spending, with clear incentives for over-spending². Thus, given the lack of incentives from national parties, we should expect independent mayors to be less fiscally responsible, as their interests may not be aligned with national interests. On the other hand, national parties may have an important role in disciplining local politicians, aligning local and national interests.

The main measure of fiscal discipline used in this chapter is the average deficit run by the mayor, divided by total average municipal revenues (i.e. deficit as a fraction of total revenues available). As a second measure, I use the accumulated debt over the term, which is equal to the sum of yearly deficits/surpluses over the five years of the term, as a fraction of total average revenues. To solve endogeneity issues and to isolate the causal effect of national parties on budget outcomes I employ a Regression Discontinuity Design (RDD), which compares municipalities in which mayors affiliated to national parties barely won with municipalities where they barely lost. The dataset is composed of mixed electoral competitions between party-affiliated and independent mayors for the Italian municipalities with a population be-

²This is what in the literature has been defined the "common pool" phenomenon (e.g., Persson and Tabellini, 1994, 2000), or the "1/n law" (Weingast et al. 1981).

low 15000 inhabitants³ and electoral mandates between 2000 and 2012.

The main results show that party-affiliated mayors are more fiscally responsible. In particular, on average party-affiliated mayors run deficits as a fraction of total revenues which are between 1.1 and 1.8 % points lower, compared to those of independents. The effect is substantial from an economic point of view and it is comparable to the effect of fiscal rules estimated by Grembi et al. (2016) for Italian municipalities. Party-affiliated mayors also tend to accumulate less debt during the entire legislative term compared to independents, with a relative reduction of debt as a fraction of total revenues of around 8.3 % points. The lower deficits of party-affiliated mayors are obtained by reducing capital expenditures by approximately 23.8 %, while local taxes are reduced by 9 %. This suggests that party-affiliated mayors reduce deficits and accumulate less debt by cutting expenditures more than taxes.

A series of heterogeneity mechanisms are then analysed in order to understand which are the channels driving the main results. First, I show that the effect on the deficit is statistically significant only for municipalities below 5000 inhabitants, which since 2001 are not subject to fiscal rules (Grembi et al., 2016). These rules, launched in 1999 under the name "Domestic Stability Pact" (DSP), were introduced by the Italian government to impose limits on municipal debts and deficits. The central government removed the rules in 2001 for municipalities with less than 5000 inhabitants.⁴ The results show

³The choice for this threshold is due to the fact that municipalities below and above 15,000 inhabitants have different electoral rules. Besides that, the percentage of independent mayors in the cities above 15,000 inhabitants is very small (Bracco et al., 2015).

⁴The explanation for this exemption was to avoid to impose onerous rules on municipalities disadvantaged by economies of scale.

that party-affiliated mayors reduce the deficit by around 2.4 % points in the municipalities that are exempt from the fiscal rules, while the effect is not statistically different from zero for municipalities above the 5000 threshold. This suggests that national parties are a substitute in constraining local politicians where fiscal rules do not apply.

Secondly, I provide empirical evidence that political parties can discipline politicians by affecting their career concerns (Riker, 1964; Enikolopov and Zhuravskaya, 2007; Ponce-Rodriguez et al., 2012). This occurs in two ways: first, I show that party-affiliated mayors have a higher probability of being re-elected for a second term. This may be because party-affiliated mayors receive financial and non-financial support from the national party, which can be used to win municipal elections. I further demonstrate that party-affiliated mayors have a higher probability of being promoted to higher levels of government. This suggests that national political parties may use politicians' ambitions for promotion to higher levels of government to discipline them.

Finally, I show that the differences in career perspectives between party-affiliated and independent mayors can be connected to the differences in fiscal discipline. This is done in different ways: 1) exploiting the fact that in Italy a mayor can be elected only for two consecutive terms, I show that the effect of national parties on the deficit is statistically significant only for first-term mayors, who could be re-elected for a second term. This indicates that the higher deficits run by independent mayors are due to re-election incentives; 2) consistent with the first point, I demonstrate that when independents run higher deficits, this occurs when they have won a second term. These

two outcomes are consistent with the literature that connects deficits to re-election incentives (see Aghion and Bolton, 1990) or to politicians' pandering to voters (see Maskin and Tirole, 2004); 3) I provide evidence that those independents who run higher deficits have a low probability of being promoted to higher levels of government. This suggests either that national parties use politicians' aspirations for promotion as a disciplining tool or that, for less clear reasons, some independent mayors have good connections with higher levels of government, and already have a good probability of being promoted. Hence, those independent mayors who do not have this connection try to be re-elected for a second time, to increase their probability of being promoted. For this reason, they run higher deficits in comparison to party-affiliated mayors, who already have a higher probability of being promoted.

I also provide empirical evidence that seems to exclude that the main results are driven by other potential alternative mechanisms: 1) I show that the results are not driven neither by the political orientation of the national parties nor by their alignment with the central government; 2) I demonstrate that the main results of this chapter are not driven by the presence of Mafia-style criminal organizations; 3) I exclude that the main results are driven by different levels of unobserved political ability between party-affiliated and independent mayors.

This study is linked to different lines of research. First, it is related to the literature on the role of national parties at the local level (Riker, 1964; Enikolopov and Zhuravskaya, 2007; Primo and Snyder, 2010; Ponce-Rodriguez et al., 2012; Koethenbueger, 2012; Folke, 2014). The general

evidence from this literature is that there are no differences between party-affiliated and independent local politicians. With this chapter I am able to bring new evidence about potential differences in terms of fiscal discipline between party-affiliated and independent politicians.

In this literature four papers are closer to mine: the first one is Cioffi, Messina and Tommasino (2012), who have already tried to compare the behaviour of party-affiliated and independent local politicians using data on Italian municipalities. In my analysis, I use a different empirical strategy (RDD rather than GMM) and I provide evidence on deficit and accumulated debt, while their focus is on political budget cycles in expenditures. The second is Aragon et al. (2015), who, using data from Peru, find no differences in the fiscal behaviour of party-affiliated and independent mayors. They mention that this may be due to fiscal rules that constrain the behaviour of local politicians. With this chapter, I provide evidence that, when fiscal rules do not apply, the behaviour of party-affiliated and independent politicians may diverge.

The third paper is Galindo-Silva (2015) who uses RDD to compare new and old national political parties in Colombian municipalities. He finds differences in terms of expenditures and revenues between new and old national political parties, but not in terms of deficit and debt accumulation. This is again due to fiscal rules that apply to Colombian municipalities. My study complements his paper adding a new result on deficit and debt accumulation and focusing on a comparison between national parties and local independent movements.

The last paper of these papers is Persson and Zhuravskaya (2016) who, using data on Chinese provinces, have studied how career concerns can affect the behaviour of politicians. My analysis complements their paper studying career concerns in a democratic context, characterized by the presence of multiple parties and independent political organizations.

This chapter is also related to the literature on the political economy of deficit determination (Alesina and Perotti, 1999; Eslava, 2011; Alesina and Passalacqua, 2015). I contribute to this literature, providing evidence that national political parties may have an important role in reducing the deficits run by local governments. This chapter is in general related to all the studies that have used RDD to analyse the behaviour of local politicians. From this point of view, different topics have been covered: 1) the partisanship effect at the local level (Pettersson-Lidbom, 2008; Ferreira and Gyourko, 2009); 2) the alignment effect between local and national governments (Brollo and Nannicini, 2012; Bracco et al. 2015); 3) the role of gender in local politics (Gagliarducci and Paserman, 2012; Brollo and Troiano, 2016).

Finally, this chapter is also related to the literature of political budget cycles at the local level (Akhmedov and Zhuravskaya 2004; Drazen and Eslava, 2010; Alesina and Paradisi, 2014), as the deficits run by independent mayors seem to be due to re-election incentives.

The chapter is organized in the following way: Section 3.2 describes the institutional setting and Section 3.3 the data used in the empirical analysis. Sections 3.4 is dedicated to the empirical strategy used, while Section 3.5 contains the main results of the chapter. Section 3.6 concludes.

3.2 Institutional Setting

This chapter is focused on mayors who, following the introduction of Law 81 in 1993, have started to enjoy a high degree of power and discretion within the municipal context. In fact, mayors are directly elected by voters and can select the executive officers. If the municipal council wants to dismiss the mayor, new elections must be held. In municipalities below 15,000 inhabitants, mayors are elected using a single round plurality rule, while a runoff system is in place in cities above the threshold. Mayors are elected for a term of five years and for a maximum of two consecutive terms (i.e. they face a term limit if re-elected).

In the sample around 73% of the mayors are independent and 27% are affiliated to national political parties. Independent mayors are supported by local independent organizations called “Civic Lists”. These are local parties which are autonomous from national parties or national coalitions. Civic Lists have names that refer to the local environment or are associated with the name of the mayoral candidate (e.g. *Insieme per Bologna*; *Lista Rossi Sindaco*). They are generally formed in one specific municipality and do not pursue electoral competitions in other cities or at higher levels of politics. While there were some independent councillors in Italian municipalities before 1993, the success of local independent movements (“Civic Lists”) started with the introduction of the direct election of the mayor in 1993. In fact, since 1993, Civic Lists have been able to elect not only councillors, but also a considerable number of mayors. This proliferation of independents politicians constitutes an interesting natural experiment of whether national political parties have

a role in disciplining local politicians.

The focus of the chapter is fiscal discipline, which is a local outcome with national relevance. This is true in decentralized countries with multiple levels of government like Italy. Local fiscal discipline has national relevance for two reasons: 1) the aggregated total deficit of a decentralized country is the sum of the deficits of all levels of government. Thus, municipalities generate negative externalities if they increase their deficit beyond reasonable levels; 2) if a local government issues a big amount of debt that it cannot repay, the central government may have to rescue it.

Italy introduced fiscal rules in 1999, following the European Stability and Growth Pact (SGP). The “Domestic Stability Pact” (DSP) set a deficit reduction target for all Italian municipalities. Grembi et al. (2016) have shown that the DSP has been effective in reducing the deficits run by municipal governments. In 2001, the central government removed the rules for municipalities with less than 5000 inhabitants that did not enjoy the same economies of scale as larger municipalities. The 2001 withdrawal of fiscal rules for small municipalities introduced a useful set up that can be exploited to compare the fiscal behaviour of party-affiliated and independent mayors.

Finally, it is important to note the importance of municipal governments in Italy, which has approximately 8000 municipalities. Municipalities oversee many services, including: municipal police, infrastructure, transport, welfare, housing, environmental services (e.g. garbage collection) and public utilities (e.g. water supply). Municipalities are in charge of 10% of total public expenditures and they get around 20% of their revenues from local taxes, while

the remainder comes from discretionary grants from higher levels of government.⁵ Among local taxes, the most important are the property tax and the surcharge on the personal income tax. The property tax was introduced in 1993 by Legislative Decree 504/1992, while the surcharge on the personal income tax was introduced in 1999.

3.3 Data

The analysis uses a dataset on Italian municipalities with a population below 15,000 inhabitants. The dataset contains information about the personal characteristics of the mayors and socio-economic characteristics of the municipalities.

For the mayors, there is information about: 1) the party affiliation of the mayor; 2) a detailed description of his or her political career; 3) personal characteristics such as gender, age, educational level and professional background.

The information about the name of the political party of the mayors comes in part from the Italian Ministry of Domestic Affairs and in part from sources such as Italian newspapers' web archives⁶ and an independent association

⁵Grants come from provinces, regions and the central state. It is important to stress that the level of fiscal dependence on grants from higher levels of government has been historically heterogeneous between the North and the South of Italy. For example, in 2000 municipalities in the North could finance 70% of their budget using local taxes and revenues, while in the South grants covered 60-70% of total expenditures (Bordignon et al., 2015). It is also important to stress that, following the financial crisis in 2008 and the crisis linked to increasing weight of the Italian public debt, the central government has considerably cut grants to local governments.

⁶See the archives on the web sites of the two main Italian newspapers: "Corriere della Sera" and "La Repubblica".

called Openpolis⁷.

Details about which local positions mayors have held comes from the Italian Ministry of Domestic Affairs.⁸ Information about the offices occupied at National and European levels comes from the the Italian and European parliaments.⁹ Finally, I have completed and checked all this information using newspapers' web archives and data from an independent association, Openpolis. The description of the political career includes information about the political offices occupied both before and after the mandates as mayor.

Information about mayors' gender, age, education level and professional background comes from the Italian Ministry of Domestic Affairs.

Information about municipal characteristics comes from the Italian Statistical Office (ISTAT) and includes: 1) geographical coordinates and features (longitude, latitude, elevation and area); 2) total population and population density; 3) income per capita; 4) number of firms; 5) the educational level of the population (e.g. percentage of the population with a high school diploma); 6) foreign population; 7) percentage of elderly and children.

The data on municipal budget outcomes (i.e. municipal expenditures and revenues) has been kindly provided by the Italian Ministry of Domestic Affairs. The dataset reports information about all municipal revenues and expenditures for the period 2000-2012.

Finally, the mafia index has been taken from Calderoni (2011), who has

⁷<http://www.openpolis.it/>

⁸Italy has three different levels of local government: Municipalities, Provinces and Regions.

⁹For the Italian Parliament <http://www.camera.it/> and <http://www.senato.it/home>. For the European Parliament: <http://www.europarl.europa.eu/>.

built different versions of an index which captures the presence of Mafia-style criminal organizations at the provincial level in Italy.

3.4 Empirical Strategy

I use regression discontinuity design (RDD) to estimate the impact on budget outcomes of party-affiliated mayors, compared to independents. Municipalities that elect party-affiliated mayors are likely to be different from municipalities with independent mayors. Thus, a simple regression by OLS comparing these two groups of municipalities will probably generate biased estimates due to endogeneity issues. For example, voters that select different types of mayors might have different unobservable preferences for fiscal policies. An RDD strategy developed using only mixed electoral competitions, in which party-affiliated candidates compete against independent candidates, represents a solution to these issues. In particular, it is plausible to assume that in mixed races decided by a narrow margin, the election outcomes are determined by random shocks and not by systematic municipal characteristics that could be correlated with fiscal policies. Thus, under certain conditions, municipalities where party-affiliated candidates barely lost can be used as a counterfactual for municipalities where they barely won.

More specifically, following the recent developments introduced by Calonico, Cattaneo and Titiunik (2014a, 2014b) and Gelman and Imbens (2014), an RDD strategy would require estimation by local linear regression (LLR) of a model such as:

$$Y_{it} = \rho_0 + \rho_1 MV_{it} + \delta_0 NP_{it} + \delta_1 NP_{it} * MV_{it} + \lambda_t + \gamma_r + \varepsilon_{it} \quad (3.1)$$

where λ_t are term fixed effects, γ_r region fixed effects and the dependent variable Y_{it} is represented by different budget outcomes measured in municipality i at time t . The treatment is captured by the dummy variable NP_{it} , which is 1 for mayors affiliated to national parties and 0 for independents. The assignment to treatment is uniquely determined by the margin of victory MV_{it} , which is calculated as the difference between the vote share of the candidate from a national party minus the vote share of the independent. At the threshold $MV_{it} = 0$ the affiliation status of the mayor sharply changes from 0 to 1, such that we have that $NP_{it} = 1$ and $MV_{it} > 0$ in municipalities in which the candidate from a national party won and $NP_{it} = 0$ and $MV_{it} < 0$ in the opposite cases. The main assumption required for this identification to work is that all relevant factors beside treatment vary smoothly at the zero threshold $MV_{it} = 0$. This is tested below.

In order to implement RDD-LLR, model 3.1 is estimated on the subsample of municipalities in the interval $MV_{it} \in [-h, +h]$, where the optimal bandwidth h is calculated following Calonico, Cattaneo, and Titiunik (2014). In this setting the coefficient of interest is $\widehat{\delta}_0$, which identifies the average treatment effect (ATE) of mayors affiliated to national parties at the zero threshold $MV_{it} = 0$.

3.5 Results

3.5.1 Sample, descriptive statistics and balance tests

This study uses data on all the mayors of Italian municipalities with a population below 15,000 inhabitants elected between 2000 and 2012. There are two reasons behind the choice of the sample: 1) municipalities with a population below 15,000 have an electoral law which is different from that of cities above the threshold. This creates different electoral incentives in terms of coalitions, presence of national political parties and number of candidates; 2) the percentage of independent candidates is very small in municipalities above the threshold. In particular, below the threshold around 73% of mayors are independents and 27% party-affiliated, while above 15,000 inhabitants only around 5% of the mayors are not affiliated to national parties (see Bracco et al., 2015). This makes municipalities below the threshold of 15,000 people more suitable for the type of empirical exercise developed in this study.

There are 11,592 electoral competitions and 5857 municipalities for which I have a complete set of values for municipal and mayoral characteristics. To implement the RDD strategy, I restrict the sample to mixed electoral races in which, irrespective of the total number of competitors, a candidate from a national party runs against an independent. In particular, a mixed electoral competition is defined as a race in which there is at least one candidate affiliated to a national party and one independent among the competitors that finished in the first two positions at the election. The sample is also limited to those legislative terms for which I do not have missing values in the past value

of the main dependent variable (i.e. average deficit from the previous term) or at least the value for the first year of the term. This is because the past values of the deficit are used to check that party-affiliated mayors are not elected in municipalities characterized by different initial values of the dependent variable. As an alternative, because for some terms I do not observe the value of the deficit from the previous term, I also check the value of the dependent variable in the first year of the term ¹⁰. This leaves me with a sample of 2809 mixed electoral competitions and 2239 municipalities. Table 3.1 reports the summary statistics for these 2809 mixed electoral competitions, distinguishing whether the elected mayor is from a national party or is an independent.

The main assumption of the RDD strategy is that pre-determined covariates should not exhibit discontinuities at the zero threshold $MV_{it} = 0$. To test for this, I run model 3.1 using as dependent variables municipal and mayoral characteristics and the value of the deficit from the previous electoral term. The results are reported in Panels A, B and C of Table 3.2. All the pre-determined characteristics are balanced at the zero threshold $MV_{it} = 0$: as we will see below, a big part of the analysis is developed using only municipalities below the 5000 threshold (i.e. municipalities not constrained by fiscal rules). For this reason, in the Appendix Table A.1, I repeat the same balance tests only for municipalities below 5000 inhabitants. As we can see, even for municipalities below this threshold all the covariates are balanced at

¹⁰In Italy municipal elections are usually held in late Spring, so that during electoral years it is possible to have two different mayors. Thus the value of the dependent variable in the first year of the term is decided by two overlapping mayors, and, from a certain point of view, it can be seen as the initial fiscal situation that the new mayor inherits from the old one, even though in the second part of the first year the new mayor can change the situation.

the zero threshold $MV_{it} = 0$.

Finally, the other crucial assumption of the RDD strategy is that voters should not be able to manipulate the forcing variable MV_{it} close to the zero threshold. In fact, if voters were perfectly able to choose between an affiliated and an independent candidate in a close race, this would indicate that the electoral outcome is not determined by random factors. This would raise doubts about the identification strategy. To test the validity of this assumption, I inspect the histogram of the margin of victory MV_{it} , which is reported in Figure 3.2 for all municipalities, and in Figure 3.3 for municipalities below 5000 only. As we can see in Figure 3.2 and 3.3, there are not spikes at the two sides of the zero threshold $MV_{it} = 0$. These results are also formally confirmed by the McCrary (2008) tests described by Figure 3.4 and 3.5, which show that there is no discontinuity in the density of MV_{it} around the threshold. In fact, in both Figures 3.4 and 3.5, I cannot reject the null assumption of continuity of the density of the running variable at the zero threshold $MV_{it} = 0$.

3.5.2 The effect of national parties on fiscal discipline

To estimate the impact on fiscal discipline of party-affiliated mayors in comparison to independent ones, I run model 3.1 on the main dependent variable, which is the deficit run by the mayor as a fraction of total revenues. This allows estimation of the average effect of party-affiliated mayors on fiscal discipline over an entire legislative term. The main results are described by Table 3.3, in which I report the following different specifications: 1) a local

linear regression (RDD-LLR) using the optimal bandwidth h calculated following Calonico, Cattaneo, and Titiunik (2014a, 2014b) without covariates in column (1) and with covariates in column (2); 2) a local linear regression (RDD-LLR) with covariates using half ($h/2$) of the optimal bandwidth in column (3); 3) RDD regressions using the double of the optimal bandwidth h and quadratic and cubic control functions in the margin of victory in columns (4) and (5). This allows investigation of how much the estimates are sensitive to the choice of the bandwidth and of the control function.

The picture that emerges from Table 3.3 is that party-affiliated mayors are more fiscally responsible compared to independents. In fact, looking at the results of the linear specification using the optimal bandwidth h and controlling for covariates (column 2), we can see that on average party-affiliated mayors run a deficit as a fraction of total revenues which is around 1.1% points lower compared to that of independents. The estimated effect is robust to the choice of different bandwidths and control functions, and it does not change if I remove the control variables (column 1). This effect is comparable to the effect of fiscal rules estimated by Grembi et al. (2016) for Italian municipalities. The same result is visualized in Figure 3.6.

The main consequence of the baseline result in Table 3.3 is that party-affiliated mayors tend to accumulate less debt during the entire legislative term ¹¹. In fact, as we can see from Table 3.4 (column 1, Panel A), the debt as a fraction of total revenues accumulated by party-affiliated mayors is 8.3%

¹¹In this chapter, the accumulated debt over the term is calculated as a fraction of average total revenues over the term = $(\sum_{t=1}^5 (\text{total expenditures}_t - \text{total revenues}_t)) / (\overline{\text{total revenues}})$.

points lower compared to that of independents.¹²

Finally, to evaluate how fiscal discipline is achieved by party-affiliated mayors I run model (1) on a series of budget outcomes: 1) capital and current expenditures (Table 3.4, Panel A, columns 2 and 3); 2) total transfers received by higher levels of government (Table 3.4, Panel B, column 1); 3) fiscal revenues from all the local taxes managed by the mayor (Table 3.4, Panel B, column 2); 4) fiscal revenues from the property and the income taxes, which represent the main fiscal tools managed by mayors (Table 3.4, Panel B, columns 3). For all variables I report a RDD-LLR specification using the optimal bandwidth h calculated following Calonico, Cattaneo, and Titiunik (2014a, 2014b) with covariates. In particular, in Table 3.4, I use the optimal CCT bandwidth calculated for the deficit, as the goal of this table is to understand how the deficit is composed.¹³ All variables are in logarithms and measured at per capita level and in 2010 prices.

The results in Table 3.4 show that for all these budget outcomes the sign of the coefficients is negative, indicating that in general party-affiliated mayors run lower budgets. However, the coefficients are statistically significant at the standard levels only for capital expenditures, total local taxes and property and income taxes. The magnitude of the effect for capital expenditures is in absolute value greater than that for taxes, a result that suggests that

¹²In column 1 of Table 3.4, the number of observations is smaller because I am keeping only the legislative terms without missing values in the yearly observations of the deficit and electoral mandates not affected by early interruptions (i.e. mandates that last for all the 5 years). This allows me to calculate the accumulated debt in the same way for all the mayors. I get similar results if I repeat the exercise with all the original electoral mandates.

¹³Results do not change if I use the specific optimal bandwidths calculate for each budget outcome.

party-affiliated mayors reduce the deficit and accumulate less debt cutting expenditures more than taxes. In fact, party-affiliated mayors tend to reduce capital expenditures by approximately 23.8% and local taxes by around 9%.

3.5.3 The role of fiscal rules

Fiscal rules were introduced in Italy in 1999. In 2001, the central government removed the rules for municipalities with less than 5000 inhabitants. This allows to run two separated RDD-LLR exercises: one for municipalities with less than 5000 inhabitants, which are exempted from the rules, and one for municipalities with more than 5000 inhabitants. The results are reported in Table 3.5 for municipalities below 5000, and Table 3.6 for municipalities above the threshold.

In both Tables 3.5 and 3.6, besides reporting the same specifications already used in Table 3.3, I add column (3), in which I control for the individual characteristics of the mayors. This is because fiscal rules do not represent the only policy changing at the 5000 threshold: at the same threshold there is an increase in the wage paid to the mayor. In practice, the results of Gagliarducci and Nannicini (2013) show that this wage increase affects the selection of politicians, and in particular the level of education of mayors. For this reason, I added a specification in which I control for the potential different selection of mayors across the 5000 threshold, which may affect fiscal discipline.¹⁴

¹⁴The wage increase at the 5000 threshold may be another factor influencing the behaviour of mayors, besides fiscal rules. For example, differences in terms of fiscal policies between party-affiliated and independent mayors, in municipalities below 5000, may be due

The estimated coefficients reported in Tables 3.5 and 3.6 clearly show that the effect on deficit is statistically significant and substantial from an economic point of view only for municipalities not constrained by fiscal rules. In particular, the effect of party-affiliated mayors on deficit in municipalities below 5000 is equal to a reduction that goes from 1.3 % points to 2.4 % points, depending on the specification used. On the other hand, the coefficients estimated for municipalities above the 5000 threshold are small and never statistically different from zero. Interestingly, the effect on deficit for municipalities with a population below 5000 inhabitants is comparable in magnitude to the effect of fiscal rules estimated by Grembi et al. (2016) for Italian municipalities. This suggests that, where fiscal rules do not apply, national parties act as a substitute for them in constraining politicians.

Besides that, as we can see from both Tables 3.5 and 3.6, controlling for the individual characteristics of the mayors in column (3) does not affect in any way the estimated coefficients. This seems to indicate that the selection

to a different reaction to the lower wage paid, rather than to the absence of fiscal rules. The same argument could be applied to municipalities above the threshold. However, the results of Gagliarducci and Nannicini (2013), who have studied the effect of wage using data on Italian municipalities between 1993 and 2001, indicate that the wage should not play this confounding role: 1) first, Gagliarducci and Nannicini (2013) show that high-paid mayors tend to spend less and collect less revenues. However, they also show that these results are due to a selection effect determined by the higher wage (i.e. high-paid mayor tend to be more educated), rather than to incentive effects driven by the wage increase. In my analysis I directly control for this selection effect; 2) Gagliarducci and Nannicini (2013) show that the wage increase does not affect the deficit (i.e. the main dependent variable used here). On the contrary, fiscal rules have proved to be effective in reducing the deficit run by Italian municipalities (Grembi et al., 2016). Hence, although it is not possible to completely exclude potential effects driven by the the wage, it is reasonable to state that differences in terms of fiscal policies between party-affiliated and independent mayors in municipalities below 5000, compared to the same difference in those above 5000, should be due to incentives determined by the absence/presence of fiscal rules, rather than by the lower wage paid.

of politicians determined by the wage increase is not playing any role in this context.

Finally, the same results are confirmed by Figures 3.7 and 3.8.

3.5.4 The role of career incentives

In this section, I provide empirical evidence of the mechanisms through which national political parties can discipline politicians. As indicated by the literature (Riker, 1964; Enikolopov and Zhuravskaya, 2007; Ponce-Rodriguez et al., 2012), political parties can discipline politicians by affecting their career prospects. In particular, political parties have the power to candidate politicians at different levels of government ¹⁵. Besides that, political parties have financial and non-financial resources that they can use to help their candidates at local elections.

Thus, the first goal of this section is to investigate whether party-affiliated politicians have different career perspectives, compared to independent ones. In particular, party-affiliated and independent mayors may have different career perspectives in the following ways: 1) they may have different probabilities of re-running as mayoral candidates; 2) they may have different probabilities of being re-elected as mayors for a second term; 3) they may have different probabilities of being a candidate at higher levels of government. These dimensions are described in Table 3.1 through descriptive statistics, and in Tables 3.7 and 3.8 through the RDD-LLR analysis.

¹⁵In Italy there are four levels of government, which starting from the lower are: municipalities, provinces, regions and national level. Besides these, Italian politicians can also be elected to the European parliament. Thus, there are different ways through which a mayor can be promoted to higher levels of government.

Different long term career perspectives may explain the different fiscal behaviours of party-affiliated mayors and independents. Hence, the second goal of this section is to connect the different career probabilities with the differences in fiscal discipline. This is presented in Tables 3.9, 3.10 and 3.11.

The first goal of this section is to provide evidence about the differences in career perspectives between party-affiliated mayors and independents. While nothing prevents an independent from running for office at higher levels of government, candidates for provincial, regional, national and European levels of government are decided by political parties. Thus, party-affiliated mayors should have better connections and exhibit a higher probability of promotion. At the same time, in municipal elections party-affiliated mayors may receive financial and non-financial support from the national party. Hence, party-affiliated mayors should have a higher probability of being elected for a second term.

These intuitions are confirmed by the descriptive statistics in Table 3.1. As we can see, mayors affiliated to national political parties have a higher probability of re-election for a second term. In particular, 53.4 % of party-affiliated mayors are re-elected for a second term and just 46.7 % of independents. These results do not seem to be driven by different probabilities of running for a second term.

In terms of promotion to higher levels of government, we can see how party-affiliated mayors have a higher probability of being a candidate at the provincial level, compared to independents (8 % vs. 6 %). A similar difference seems to emerge if we consider all the levels of government above the municipal

level together (provincial, regional and national). In this case, the percentage of promoted mayors is 17.9 % for party-affiliated mayors and 14.3 % for independents.

The differences observed in the descriptive statistics may be driven by other unobservable factors. For this reason, in Tables 3.7 and 3.8, I apply the RDD analysis to the different variables capturing the career prospects of mayors. As the differences in terms of fiscal discipline can be found only in municipalities not affected by fiscal rules, the analysis starting from this point is split between municipalities below 5000 inhabitants (i.e. municipalities not constrained by fiscal rules) and municipalities between 5000 and 15000 (i.e. those affected by fiscal rules). The results for municipalities below 5000 are reported in Table 3.7, while those for municipalities above 5000 are in Table 3.8. In both tables, I report two specifications for each dependent variable: one with the optimal bandwidth without municipal covariates, and one with the same interval and controlling for municipal covariates.

The estimated coefficients in Table 3.7 clearly indicate that party-affiliated mayors, elected in towns not affected by fiscal rules, have better career prospects, compared to independent mayors. In particular: 1) the results in columns (3)-(4) indicate that party-affiliated mayors have a higher probability of being re-elected for a second term. This difference in probability is more than 20 %; 2) the differences in re-election probability do not seem to be driven by differences in the probability of being the mayoral candidate for a second time, as described by columns (1) and (2); 3) party-affiliated mayors, compared to independents, have a probability of being candidate at the provincial

level of government which is approximately 11 % higher (columns (5)-(6)). This result is sensible, as the provincial level of government is the level immediately above municipalities; 4) columns (7)-(8) show that party-affiliated mayors have in general a higher probability of being a candidate at higher levels of government, although the results in these columns are not precisely estimated.

The same differences in terms of career perspectives cannot be found in municipalities above 5000, as all the coefficients reported in Table 3.8 are small and not statistically different from zero. This may be explained by the fact that mayors in bigger municipalities have more visibility, even if they are not affiliated to a national party. This higher visibility may help them in pursuing a political career. Alternatively, mayors in bigger municipalities may have a higher probability of being connected to higher levels of government, even if they are independents.

Thus, the results of Tables 3.7 and 3.8 seem to indicate that party-affiliated mayors, if compared to independents, have better career perspectives, especially in small municipalities.

The second goal of this section is to connect the different career probabilities with the differences in fiscal discipline. Tables 3.9, 3.10 and 3.11 contains estimated coefficients for municipalities below 5000.

In Table 3.9, I investigate if the higher deficits run by independent mayors are due to potential re-election incentives. In particular, in this exercise I exploit the fact that in Italy a mayor can only be elected for two consecutive terms, i.e. second term mayors are term-limited. This allows me to evaluate

whether the higher deficits run by independent mayors are due to re-election incentives. I run two separate RDD-LLR empirical exercises: one for first-term mayors and one for second term ones (i.e. term-limited mayors). In columns (1)-(2), I report the specification with the optimal bandwidth, while in columns (3)-(4), I check the robustness of the results using half of the optimal bandwidth. In particular, in Table 3.9 I use the optimal CCT bandwidth calculated for the main regressions on deficit for municipalities below 5000 (see Table 3.5), as the goal of the exercise here is to understand which type of mayors (i.e. first term or second term) is driving the main results in Table 3.5.

The estimated coefficients show that the effect is statistically significant only for first-term mayors. In particular, first-term party-affiliated mayors run deficits which are between 1.5 and 2.8 % points lower than those run by independents. On the other hand, the estimated coefficients for second-term party-affiliated mayors are not statistically different from zero. This seems to indicate that the higher deficits run by independent mayors are due to re-election incentives. This is consistent with the literature that connects deficits to re-election incentives (see Aghion and Bolton, 1990) or to politicians' pandering to voters (see Maskin and Tirole, 2004).

To provide further evidence on this point, I implement an additional empirical exercise in which I distinguish between first-term mayors who are re-elected for a second term and first-term mayors who are not re-elected. The results are reported in columns (1)-(2) of Table 3.10. As re-election is an outcome for the national party treatment, in order to avoid potential biases due

to endogeneity issues, following the intuitions of Ferraz and Finan (2011) I repeat the exercise using the predicted probability of being re-elected, rather than the observed re-election status. This predicted probability is obtained regressing the re-election status on pre-determined municipal and mayoral characteristics ¹⁶. The estimates obtained by splitting the sample using the predicted probabilities are reported in columns (3) and (4) of Table 3.10.

As we can see, the results of Table 3.10 indicate that the higher deficits produced by independent mayors are run by those mayors who have been successful in being re-elected for a second term. This provides additional evidence that the higher deficits run by independent mayors are due to re-election incentives. Thus, in connection with the results reported in Table 3.7, it seems that party-affiliated mayors, compared to independents, seem to run lower deficits because they already have an electoral advantage due to their affiliation. In fact, party-affiliated mayors receive the support of national parties during the campaign and thus they should have more resources at their disposal. This should create an electoral disadvantage for independents.

Finally, in Table 3.11, I provide empirical evidence about the connection between promotion to higher levels of government and the differential fiscal behaviour of party-affiliated and independent mayors. As described by Table 3.7, party-affiliated mayors have a higher probability of being promoted at

¹⁶In particular, I have regressed by logit the re-election dummy variable on the following variables: the margin of victory at municipal election, population, elderly index, income, dummy variable for national party, age, dummy variable for graduate mayor, past political experience, past professional background, region and term FE effects. The predicted probability has been then transformed in a dummy variable equal to one if the predicted probability is higher than 0.5. This has been used to run the regressions in columns (3) and (4) of Table 3.10. This estimation procedure correctly predicted 66.47 % of the cases.

provincial level. For this reason, with an exercise similar to the one developed in Table 3.10, in Table 3.11 I study the effect of national parties on fiscal discipline distinguishing between mayors candidate at provincial level, and mayors not promoted at provincial level. The results of this exercise are reported in columns (1) and (2). As promotion to higher levels of government is a dependent variable for national party treatment, following the same intuition used in Table 3.10, in columns (3) and (4) I use the predicted probability of being a candidate at provincial level rather than the actual observed one¹⁷.

As we can see, both exercises in Table 3.11 indicate that the higher deficits produced by independent mayors are run by those mayors who have a low probability of being candidate at provincial level. In fact, among the mayors who have been promoted at provincial level, there are no differences in terms of fiscal discipline between party-affiliated and independent first citizens.

These last results can be interpreted in two ways: 1) for some unknown reasons, some independent mayors have good connections with the provincial level of government, and thus they already have a good probability of being promoted. Hence, those independent mayors who do not have this connec-

¹⁷In particular, I have regressed by logit promotion to provincial level on the following variables: the margin of victory at municipal election, population, elderly index, income, dummy variable for national party, dummy variable for term limited mayor, age, dummy variable for graduate mayor, past political experience, past professional background, region and term FE effects. The predicted probability has been then transformed in a dummy variable equal to one if the predicted probability is higher than 0.1. In this case, I have used a lower threshold (0.1 rather than 0.5), because a small proportion of mayors are promoted to higher levels of government. For example, the threshold 0.5 for the predicted probability of being candidate at provincial level is above the 99th percentile of the distribution. This has been used to run the regressions in columns (3) and (4) of Table 3.11. This estimation procedure correctly predicted 92.86 % of the cases.

tion try to be re-elected to increase their popularity and achieve promotion at the provincial level of government. For this reason, they run higher deficits in comparison to party-affiliated mayors, who already have a higher probability of being promoted; 2) national parties use promotion to higher levels of government as a disciplining device. Thus, all the mayors that want to be candidate at provincial level must keep the deficit low, even independent ones.

3.5.5 Other potential mechanisms

In this section, I investigate other potential mechanisms that may drive the main results. In particular, the goal of this section is to provide empirical evidence that excludes that the main results of this chapter are driven by these other potential mechanisms. In particular, in this section I investigate the following potential mechanisms: 1) political orientation (i.e. *Centre-left vs. centre-right national parties*); 2) alignment with the central government (i.e. *Aligned vs. non-aligned mayors*); 3) the role of Mafia style criminal organizations; 4) the role of unobserved political ability.

Centre-left vs. centre-right. In this paragraph, I investigate if both party-affiliated mayors from centre-left and centre-right national parties have a role in disciplining politicians ¹⁸. This exercise is implemented in order to exclude that the main results of the chapter are due to a particular political

¹⁸In Italy, in the years between 1993 and 2013, it was possible to clearly identify two big political coalitions: one, on the centre-right, was the coalition driven by Silvio Berlusconi. The other, on the centre-left, was the coalition driven by the heirs of the past Italian Communist Party.

orientation of the mayor. To implement this exercise, I run model (1) on two different samples: 1) a sample of mixed electoral competitions between centre-right party-affiliated mayors and independent ones; 2) a sample of mixed electoral competitions between centre-left party-affiliated mayors and independent ones. The results of these two exercises are reported in Table 3.12. In particular, columns (1) and (3) make reference to the comparison between centre-right party affiliated mayors and independents, while columns (2) and (4) look at the other comparison. In columns (1)-(2) I use the optimal bandwidth, while in columns (3)-(4) half of the optimal bandwidth.

As we can see, both centre-left and centre-right party-affiliated mayors reduce the average deficit compared to independents. In particular, centre-right party-affiliated mayors tend to reduce the deficit by between 1.3% and 2.2 % points, depending on the bandwidth used, while the effect for centre-left mayors is between 1.7 % and 3.9% points. These estimated coefficients indicate that the main results are mostly driven by a national political parties' effect, rather than the political orientation of the mayor.

Aligned vs. non-aligned mayors. The same logic can be applied to cases of party-affiliated mayors that are politically aligned with the central government at the national level, compared to those that are not. In fact, there is a literature (Bracco et al., 2015; Brollo and Nannicini, 2012) that shows that alignment with the central government affects the incentives and resources of local politicians. To implement this exercise, I run model (1) on two different samples: 1) a sample of mixed electoral competitions between non-aligned party-affiliated mayors and independents; 2) a sample of mixed

electoral competitions between aligned party-affiliated mayors and independents. The results are reported in Panel B of Table 3.13. In particular, columns (1) and (3) make reference to the comparison between non-aligned party affiliated mayors and independents, while columns (2) and (4) look at the other comparison. In columns (1)-(2) I use the optimal bandwidth, while in columns (3)-(4) half of the optimal bandwidth.

Both non-aligned and aligned party-affiliated mayors reduce the average deficit compared to independents. In particular, the estimated effect for non-aligned party affiliated mayors is between 1.2% and 2.4 % points, depending on the bandwidth used, while the effect for aligned party-affiliated mayors is between 1.8 % and 3.4% points. Finally, the coefficients in columns (1) and (2) are not precisely estimated. However, when I use half of the optimal bandwidth, I get coefficients which are bigger in absolute value and statistically different from zero. As in the RDD analysis there is a trade-off between bias and efficiency (i.e. lower bias with a smaller bandwidth at the cost of lower efficiency, given the smaller number of observations), we can trust that the coefficients obtained with half of the optimal bandwidth are closer in magnitude to the true effect.

As for the previous section, these estimated coefficients also show that the main results of the chapter are due to a national political parties effect.

The role of Mafia-style criminal organizations. I provide here empirical evidence which is useful for excluding the possibility that the main results of this chapter are driven by Mafia style criminal organizations. In particular, it may be that independent mayors are more easily captured by criminal

organizations, compared to party-affiliated ones. This may have an effect on fiscal discipline.

To exclude this possibility, I run two separate RDD exercises, in which I compare the fiscal behaviour of party-affiliated mayors with that of independents in two different contexts: 1) municipalities characterized by a low presence of criminal organizations; 2) municipalities characterized by a high presence of criminal organizations. To distinguish between these two environments, I use a Mafia index built by Calderoni (2011), which quantifies the presence of Mafia style criminal organizations in Italian provinces. The results of this exercise are reported in Table 3.14. In particular, columns (1) and (3) make reference to municipalities with a value of the Mafia index below the median (i.e. low presence of criminal organizations), while columns (2) and (4) look at municipalities with a value above the median (i.e. high presence of criminal organizations). In columns (1)-(2) I use the optimal bandwidth, while in columns (3)-(4) half of the optimal bandwidth.

The estimated coefficients in Table 3.14 suggest that the main results of this chapter are not driven by Mafia-style criminal organizations. In fact, party-affiliated mayors, compared to independents, tend to run lower deficits in both municipalities with a low presence of criminal organizations and municipalities with a high presence of criminal organizations.

The role of unobserved political ability. As observed in Table 3.2, party-affiliated mayors and independents tend to have the same level of past political experience. However, this does not exclude that they may have a different level of unobserved political ability.

I argue that the estimated coefficients reported in Table 3.10 provide evidence that unobserved political ability is not one of the main drivers of the results of this chapter. In fact, as argued by Ferraz and Finan (2011), mayors who were able to be re-elected for a second term should be characterized by the same level of unobserved political ability. Thus, the results of Table 3.10, which show that the higher deficits produced by independents are run by mayors who were re-elected for a second term, demonstrate that unobserved political ability is not one of the drivers of the results of this chapter. This is because party-affiliated and independent mayors re-elected for a the second term should be characterized by the same level of unobserved political ability.

3.6 Conclusion

In this chapter, I exploit the proliferation in Italian municipalities of local independent movements ("Civic Lists") to make a comparison between mayors affiliated to national parties and independents. This framework is used to test whether political parties are able to discipline politicians by affecting their career prospects.

The results show that party-affiliated mayors are more fiscally responsible. In fact, mayors affiliated to national parties run deficits as a fraction of total revenues which are between 1.1% and 1.8 % points lower. Besides that, party-affiliated mayors accumulate less debt during the legislative mandate, with a reduction of debt as a fraction of total revenues of about 8.3% points. The results show that the lower deficits are generated by cutting capital

expenditures by approximately 23.8% and by reducing local taxes by 9%. This indicates that mayors affiliated to national parties cut deficits and accumulate less debt by reducing expenditures more than taxes.

A heterogeneity analysis is then implemented to study which channels are driving the main results. First, the effect on deficit is statistically significant only for municipalities not constrained by fiscal rules (Grembi et al., 2016): party-affiliated mayors reduce the deficit by around 2.4 % points in municipalities exempted by the fiscal rules, while the effect is not different from zero in municipalities constrained by fiscal rules. This suggests that, where fiscal rules do not apply, national parties act as a substitute for fiscal rules in constraining local politicians.

Second, the results indicate that political parties discipline politicians by affecting their career prospects (Riker, 1964; Enikolopov and Zhuravskaya, 2007; Ponce-Rodriguez et al., 2012). This is done in two ways: 1) party-affiliated mayors have a higher re-election probability, compared to independents; and 2) party-affiliated mayors are more likely to be promoted to higher levels of government.

Then, this Chapter provides evidence that the differences in career prospects between party-affiliated and independent mayors are linked to the differences in fiscal behaviour. In particular: 1) the effect of national parties on deficit is significant only for mayors eligible for re-election; 2) the higher deficits run by independents are produced by mayors who have been successfully re-elected. These two results are consistent with the literature on the correlation between deficits and re-election incentives (see Aghion and Bolton, 1990) or with the

literature that explains how politicians pander to voters (see Maskin and Tirole, 2004); 3) the higher deficits produced by independents are run by mayors who are less likely to be promoted to higher levels of government. This suggests that career prospects can be used by political parties to discipline politicians. An alternative explanation may be that, for some unknown reasons, some independents have good connections with higher levels of government, and thus they already have a good probability of being promoted. Thus, those independents without good connections try to be re-elected, to increase their chances of being promoted. For this reason, they run higher deficits.

Finally, I rule out the following alternative stories: 1) the results are not driven by the political orientation nor by alignment with the central government; 2) the main results are not driven by Mafia-style criminal organizations; 3) I exclude that the main results are driven by unobserved political ability.

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Table 3.1: Descriptive statistics:
Party-affiliated vs. Independent

	(1) <i>Party Affiliated</i>	(2) obs	(3) <i>Independent</i>	(4) obs	(5) p-value
<i>Budget outcomes</i>					
Deficit	0.013	1430	0.018	1379	0.043
Accumulated debt	0.056	1430	0.069	1379	0.011
Property and Income taxes	285.114	1430	293.156	1379	0.168
Total taxes	413.616	1430	424.778	1379	0.140
Total transfers	475.890	1430	473.309	1379	0.911
<i>Political career outcomes</i>					
re-run	0.668	679	0.646	642	0.395
re-elected	0.534	679	0.467	642	0.014
candidate provincial level	0.080	1430	0.060	1379	0.036
candidate provincial, regional and national level	0.179	1430	0.143	1379	0.009
<i>Mayoral characteristics</i>					
term limit	0.260	1430	0.275	1379	0.356
Political experience	7.240	1430	7.174	1379	0.764
Skill job	0.238	1430	0.235	1379	0.861
Unemployed	0.109	1430	0.144	1379	0.004
Age	49.708	1430	50.930	1379	0.000
Female	0.120	1430	0.110	1379	0.406
# candidates	2.797	1430	2.806	1379	0.806
# council seats	9.911	1430	9.685	1379	0.000
<i>Municipal characteristics</i>					
daily newspapers	77.353	1413	81.312	1354	0.002
Mafia index	4.786	1430	5.148	1379	0.404
% foreign	0.076	1408	0.071	1360	0.004
longitude	12.065	1408	11.549	1360	0.000
latitude	43.527	1408	43.750	1360	0.010
altitude	298.852	1408	299.674	1360	0.931
area	35.273	1408	30.739	1360	0.001
Past deficit	0.014	1349	0.015	1327	0.765
Income	13528.330	1430	13623.480	1379	0.386
# firms	0.078	1430	0.077	1379	0.069
% 65	1.686	1430	1.643	1379	0.323
population	4694.609	1430	4333.279	1379	0.004

Notes. Municipalities below 15000. Electoral terms between 2000 and 2012. *Party Affiliated* = 1 for a Mayor affiliated to a national political party, *Independent* = 1 for a Mayor not affiliated to a national political party. Columns (1) and (3) report the mean values for the two samples; *obs* is the number of observations; *p-value* is the p-value of the difference between the means of the two samples.

Table 3.2: Discontinuities in municipal and mayoral characteristics, RDD estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A: Municipal characteristics + past deficit</i>								
<i>National Party</i>	population 0.031 (0.087)	elderly index -0.139 (0.111)	# firms -0.000 (0.002)	income -0.028 (0.023)	% college -0.000 (0.002)	past deficit 0.005 (0.005)	past deficit last year -0.001 (0.009)	deficit first year -0.010 (0.007)
Bandwidth	12.85	9.902	14.69	14.72	15.70	17.34	6.916	19.48
Observations	1,231	991	1,356	1,358	1,430	1,450	519	1,676
<i>Panel B: Municipal characteristics</i>								
<i>National Party</i>	area -4.412 (3.438)	altitude -25.437 (23.403)	latitude 0.053 (0.221)	longitude 0.380 (0.287)	% foreign 0.005 (0.005)	newspapers -4.919 (3.401)	mafia index -1.221 (1.165)	# candidates -0.037 (0.097)
Bandwidth	13.17	16.80	19.68	16.74	14.95	15.70	20.47	15.72
Observations	1,239	1,495	1,668	1,492	1,360	1,416	1,722	1,434
<i>Panel C: Mayoral characteristics</i>								
<i>National Party</i>	female 0.010 (0.033)	age -1.284 (0.931)	postgraduate -0.002 (0.059)	skill job -0.045 (0.045)	unemployed -0.030 (0.030)	term limit -0.013 (0.043)	political experience 0.920 (0.595)	# seats 0.139 (0.166)
Bandwidth	16.66	19.25	12.13	16.38	21.4	6 12.15	15.40	17.40
Observations	1,497	1,660	1,175	1,480	1,773	1,175	1,407	1,543

Notes. All municipalities below 15000 inhabitants. Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. All specifications include a linear control for the margin of victory of a national party on each side of the discontinuity and the optimal bandwidth. Term FE included in all columns. Definition dependent variables Panel A: pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; firms = number of firms per capita at municipal level; income = log of income per capita; % college = percentage of population with a college degree; past deficit = previous electoral term average deficit as a fraction of total revenues; past deficit last year = previous electoral term deficit as a fraction of total revenues measured in the last year of the term; deficit first year = deficit as a fraction of total revenues in the first year of the actual electoral term. Definition dependent variables Panel B: area = municipal area in square kilometers; altitude = altitude of the municipality; latitude = latitude of the municipality; longitude = longitude of the municipality; % foreign = percentage of foreign population living in the municipality; newspapers = number of non-sport daily newspapers sold for every 1000 people; mafia index = index for the presence of Mafia style criminal organizations at the provincial level; # candidates = number of candidates at the municipal level. Definition dependent variables Panel C: female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; postgraduate = 1 if mayor has a college degree; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; term limit = 1 if mayor is at the second term (i.e. mayor is term limited); political experience = years of past political experience of the mayor at any level of politics; #seats = number of seats in the council for the mayor's coalition. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.3: The effect of national party on fiscal discipline, RDD estimates

	(1)	(2)	(3)	(4)	(5)
<i>Outcome: Average deficit as a fraction of total revenues</i>					
Control Function	Linear	Linear	Linear	Quadratic	Cubic
Bandwidth	h	h	$h/2$	$2h$	$2h$
Covariates	No	Yes	Yes	Yes	Yes
<i>National Party</i>	-0.011** (0.005)	-0.011** (0.005)	-0.018** (0.008)	-0.013** (0.006)	-0.016** (0.008)
Outcome mean	0.017	0.017	0.017	0.015	0.015
Bandwidth	9.888	9.888	4.944	19.78	19.78
Observations	990	990	487	1,684	1,684

Notes. All municipalities below 15000 inhabitants. Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Region and term FE included in all columns except column (1). Covariates included in columns (2)-(5): pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.4: The effect of national party on debt, expenditures and revenues,
RDD estimates

	(1)	(2)	(3)
<i>Panel A: Debt and Expenditures</i>			
Control Function	Linear	Linear	Linear
Bandwidth	h	h	h
Covariates	Yes	Yes	Yes
Outcome	Accumulated debt	Capital expenditures	Current expenditures
<i>National Party</i>	-0.083** (0.034)	-0.214** (0.084)	-0.033 (0.029)
Bandwidth	9.888	9.888	9.888
Observations	644	990	990
<i>Panel B: Revenues</i>			
Control Function	Linear	Linear	Linear
Bandwidth	h	h	h
Covariates	Yes	Yes	Yes
Outcome	Total transfers	Total taxes	Property and income taxes
<i>National Party</i>	-0.031 (0.071)	-0.084** (0.039)	-0.099** (0.043)
Bandwidth	9.888	9.888	9.888
Observations	990	990	990

Notes. All municipalities below 15000 inhabitants. Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Region and term FE included in all columns. Definition dependent variables Panel A: Accumulated debt = summation of yearly deficits/surpluses produced during the electoral term as a fraction of total revenues; Capital expenditures = log of capital expenditures per capita; Current expenditures = log of current expenditures per capita. Definition dependent variables Panel B: Total transfers = log of current + capital transfers from higher levels of government; Total taxes = log of total municipal taxes raised by the mayor; Property and income taxes = log of property + income taxes raised by the mayor. Covariates included in columns (1)-(3): pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.5: The effect of national party on fiscal discipline, RDD estimates:
Municipalities below 5000

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Outcome: Average deficit as a fraction of total revenues</i>						
Control Function	Linear	Linear	Linear	Linear	Quadratic	Cubic
Bandwidth	h	h	h	$h/2$	$2h$	$2h$
Municipal covariates	No	Yes	Yes	Yes	Yes	Yes
Mayoral covariates	No	No	Yes	No	No	No
<i>National Party</i>	-0.013** (0.006)	-0.014** (0.006)	-0.014** (0.006)	-0.024*** (0.009)	-0.014** (0.007)	-0.021** (0.009)
Outcome mean	0.019	0.019	0.019	0.020	0.017	0.017
Bandwidth	14.85	14.85	14.85	7.426	29.70	29.70
Observations	851	851	851	457	1,294	1,294

Notes. Municipalities below 5000 inhabitants (i.e. municipalities not constrained by fiscal rules). Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Region and term FE included in all columns except column (1). Municipal covariates included in columns (2)-(6): pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Mayoral covariates included in column (3): female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; postgraduate = 1 if mayor has a college degree; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; term limit = 1 if mayor is at the second term (i.e. mayor is term limited); political experience = years of past political experience of the mayor at any level of politics. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.6: The effect of national party on fiscal discipline, RDD estimates:
Municipalities between 5000-15000

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Outcome: Average deficit as a fraction of total revenues</i>						
Control Function	Linear	Linear	Linear	Linear	Quadratic	Cubic
Bandwidth	h	h	h	$h/2$	$2h$	$2h$
Municipal covariates	No	Yes	Yes	Yes	Yes	Yes
Mayoral covariates	No	No	Yes	No	No	No
<i>National Party</i>	-0.001 (0.007)	0.005 (0.007)	0.005 (0.008)	-0.005 (0.011)	-0.003 (0.007)	-0.004 (0.009)
Outcome mean	0.011	0.011	0.011	0.011	0.010	0.010
Bandwidth	6.943	6.943	6.943	3.472	13.89	13.89
Observations	264	264	264	134	496	496

Notes. Municipalities between 5000 and 15000 inhabitants (i.e. municipalities constrained by fiscal rules). Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Region and term FE included in all columns except column (1). Municipal covariates included in columns (2)-(6): pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Mayoral covariates included in column (3): female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; postgraduate = 1 if mayor has a college degree; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; term limit = 1 if mayor is at the second term (i.e. mayor is term limited); political experience = years of past political experience of the mayor at any level of politics. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.7: The effect of national party on political career, RDD estimates:
Municipalities below 5000

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Outcome: Re-election + Promotion at higher levels of government</i>								
Outcome	=1 if mayor re-run	=1 if mayor re-run	=1 if mayor re-elected	=1 if mayor re-elected	=1 candidate provincial level	=1 candidate provincial level	=1 candidate higher level	=1 candidate higher level
<i>National Party</i>	0.126 (0.092)	0.126 (0.095)	0.215** (0.104)	0.237** (0.111)	0.125*** (0.036)	0.108*** (0.037)	0.037 (0.045)	0.022 (0.047)
Outcome mean	0.640	0.640	0.440	0.440	0.0635	0.0635	0.145	0.145
Bandwidth	11.82	11.82	9.512	9.512	10.54	10.54	15.73	15.73
Observations	400	400	339	339	646	646	889	889
Control Function	Linear	Linear	Linear	Linear	Linear	Linear	Linear	Linear
Bandwidth	h	h	h	h	h	h	h	h
Municipal covariates	No	Yes	No	Yes	No	Yes	No	Yes

Notes. Municipalities below 5000 (i.e. municipalities not constrained by fiscal rules). Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Dependent variable in columns (1)-(2): =1 if mayor re-run for a second term in the same municipality. Dependent variable in columns (3)-(4): =1 if mayor re-elected for a second term in the same municipality. Dependent variable in columns (5)-(6): =1 if mayor candidate at the provincial level of government after the experience as a mayor at any point in time. Dependent variable in columns (7)-(8): =1 if mayor candidate at provincial, regional or national levels of government after the experience as a mayor at any point in time. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Term FE included in all columns. Region FE included in columns (2), (4), (6) and (8). Municipal covariates included in columns (2), (4), (6) and (8); pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.8: The effect of national party on political career, RDD estimates:
Municipalities between 5000-15000

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Outcome: Re-election + Promotion at higher levels of government</i>								
Outcome	=1 if mayor re-run	=1 if mayor re-run	=1 if mayor re-elected	=1 if mayor re-elected	=1 candidate provincial level	=1 candidate provincial level	=1 candidate higher level	=1 candidate higher level
<i>National Party</i>	-0.033 (0.130)	-0.047 (0.138)	-0.002 (0.136)	-0.004 (0.137)	0.000 (0.040)	0.001 (0.041)	0.033 (0.066)	0.031 (0.067)
Outcome mean	0.716	0.716	0.483	0.483	0.0812	0.0812	0.180	0.180
Bandwidth	12.98	12.98	11.72	11.72	14.32	14.32	11.16	11.16
Observations	222	222	203	203	505	505	417	417
Control Function	Linear	Linear	Linear	Linear	Linear	Linear	Linear	Linear
Bandwidth	h	h	h	h	h	h	h	h
Municipal covariates	No	Yes	No	Yes	No	Yes	No	Yes

Notes. Municipalities between 5000 and 15000 (i.e. municipalities constrained by fiscal rules). Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Dependent variable in columns (1)-(2): =1 if mayor re-run for a second term in the same municipality. Dependent variable in columns (3)-(4): =1 if mayor re-elected for a second term in the same municipality. Dependent variable in columns (5)-(6): =1 if mayor candidate at the provincial level of government after the experience as a mayor at any point in time. Dependent variable in columns (7)-(8): =1 if mayor candidate at provincial, regional or national levels of government after the experience as a mayor at any point in time. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Term FE included in all columns. Region FE included in columns (2), (4), (6) and (8). Municipal covariates included in columns (2), (4), (6) and (8): pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.9: The role of term limits:
Municipalities below 5000

	(1)	(2)	(3)	(4)
<i>Outcome: Average deficit as a fraction of total revenues</i>				
Sample	Term limit		Term limit	
	No	Yes	No	Yes
<i>National Party</i>	-0.015** (0.007)	-0.001 (0.008)	-0.028*** (0.010)	-0.000 (0.014)
Outcome mean	0.020	0.012	0.022	0.010
Bandwidth	14.85	14.85	7.426	7.426
Observations	716	135	431	420

Notes. Municipalities below 5000 (i.e. municipalities not constrained by fiscal rules). Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Description of sample: Term Limit: No = mixed electoral competition between a first term party-affiliated mayor vs. a first term independent mayor (i.e. mayors who can re-run for a second term); Yes = mixed electoral competition between a second term party-affiliated mayor vs. a second term independent mayor (i.e. term limited mayors). Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Region and term FE included in all columns. Municipal covariates included in all columns: pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.10: The role of re-election:
Municipalities below 5000

	(1)	(2)	(3)	(4)
<i>Outcome: Average deficit as a fraction of total revenues</i>				
Sample	mayor re-elected No	mayor re-elected Yes	mayor re-elected <i>predicted</i> No	mayor re-elected <i>predicted</i> Yes
<i>National Party</i>	-0.006 (0.011)	-0.031* (0.016)	-0.009 (0.013)	-0.029** (0.013)
Outcome mean	0.017	0.019	0.019	0.017
Bandwidth	14.85	14.85	14.85	14.85
Observations	258	214	254	218

Notes. Municipalities below 5000 (i.e. municipalities not constrained by fiscal rules). Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Description of sample: mayor re-elected: No = mayor not re-elected for a second term in the same municipality; Yes = mayor re-elected for a second term in the same municipality. In column (1)-(2), I am using the observed re-election status, while in column (3)-(4) the predicted re-election status, as estimated in the data through a logit model. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Region and term FE included in all columns. Municipal covariates included in all columns: pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.11: The role of promotion at higher level of government:
Municipalities below 5000

	(1)	(2)	(3)	(4)
<i>Outcome: Average deficit as a fraction of total revenues</i>				
Sample	candidate provincial level No	candidate provincial level Yes	candidate provincial level <i>predicted</i> No	candidate provincial level <i>predicted</i> Yes
<i>National Party</i>	-0.015** (0.006)	0.008 (0.016)	-0.016** (0.008)	-0.006 (0.006)
Outcome mean	0.019	0.017	0.020	0.014
Bandwidth	14.85	14.85	14.85	14.85
Observations	790	61	631	220

Notes. Municipalities below 5000 (i.e. municipalities not constrained by fiscal rules). Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Description of sample: candidate provincial level: No = mayor not candidate at provincial level after mayoral term; Yes = mayor candidate at provincial level after mayoral term. In column (1)-(2), I am using the observed candidacy status, while in column (3)-(4) the predicted candidacy status, as estimated in the data through a logit model. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Region and term FE included in all columns. Municipal covariates included in all columns: pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.12: The role of political orientation:
Municipalities below 5000

	(1)	(2)	(3)	(4)
<i>Outcome: Average deficit as a fraction of total revenues</i>				
Sample	Left Party		Left Party	
	No	Yes	No	Yes
<i>National Party</i>	-0.013* (0.008)	-0.017* (0.009)	-0.022* (0.013)	-0.039*** (0.014)
Outcome mean	0.023	0.013	0.025	0.014
Bandwidth	14.85	14.85	7.426	7.426
Observations	480	371	253	204

Notes. Municipalities below 5000 (i.e. municipalities not constrained by fiscal rules). Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Description of sample: Left Party: No = mixed electoral competition between a right-wing party-affiliated mayor vs. an independent mayor; Yes = mixed electoral competition between a left-wing party-affiliated mayor vs. an independent mayor. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Region and term FE included in all columns. Municipal covariates included in all columns: pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.13: The role of alignment:
Municipalities below 5000

	(1)	(2)	(3)	(4)
<i>Outcome: Average deficit as a fraction of total revenues</i>				
Sample	Aligned Party No	Aligned Party Yes	Aligned Party No	Aligned Party Yes
<i>National Party</i>	-0.012 (0.009)	-0.018 (0.012)	-0.024* (0.013)	-0.034** (0.017)
Outcome mean	0.015	0.019	0.016	0.019
Bandwidth	14.85	14.85	7.426	7.426
Observations	565	718	312	392

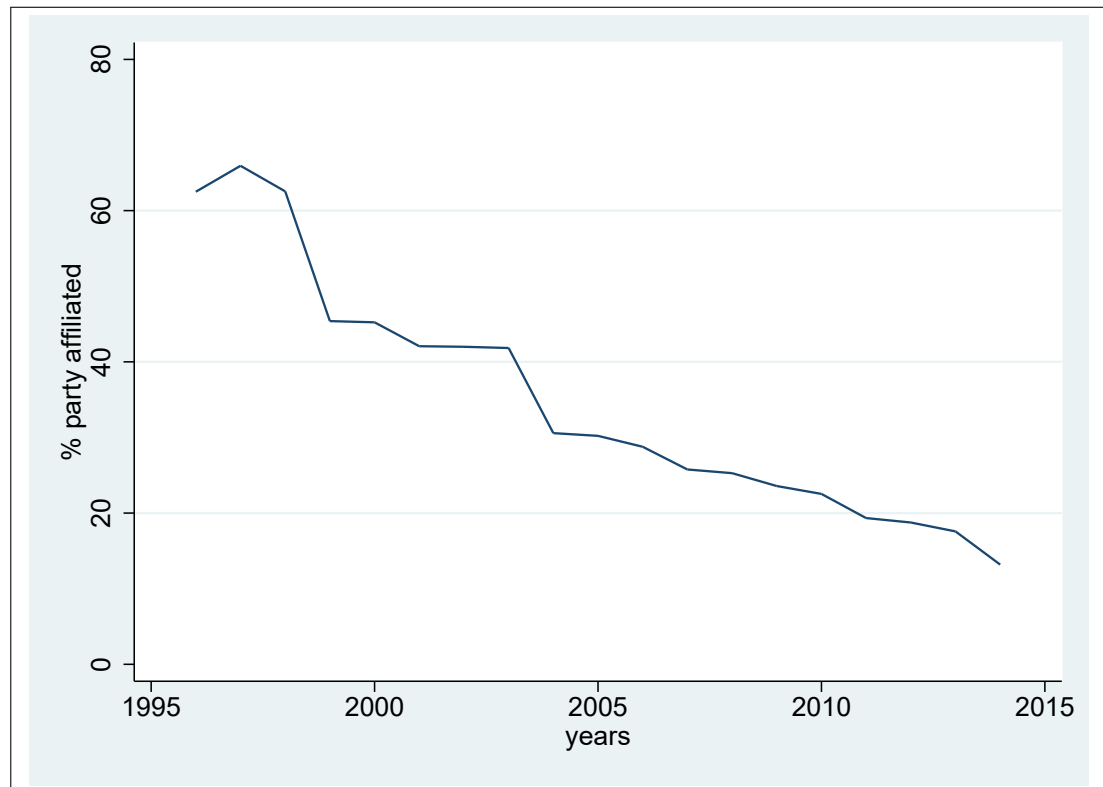
Notes. Municipalities below 5000 (i.e. municipalities not constrained by fiscal rules). Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Description of sample: Aligned Party: No = mixed electoral competition between a party-affiliated mayor who is not aligned with central government vs. an independent mayor; Yes = mixed electoral competition between a party-affiliated mayor who is aligned with central government vs. an independent mayor. Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Region and term FE included in all columns. Municipal covariates included in all columns: pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Table 3.14: The role of criminal organizations:
Municipalities below 5000

	(1)	(2)	(3)	(4)
<i>Outcome: Average deficit as a fraction of total revenues</i>				
Sample	Mafia index>median No	Mafia index>median Yes	Mafia index>median No	Mafia index>median Yes
<i>National Party</i>	-0.016** (0.006)	-0.013 (0.010)	-0.020** (0.009)	-0.027** (0.013)
Outcome mean	0.020	0.017	0.021	0.019
Bandwidth	14.85	14.85	7.426	7.426
Observations	381	470	206	251

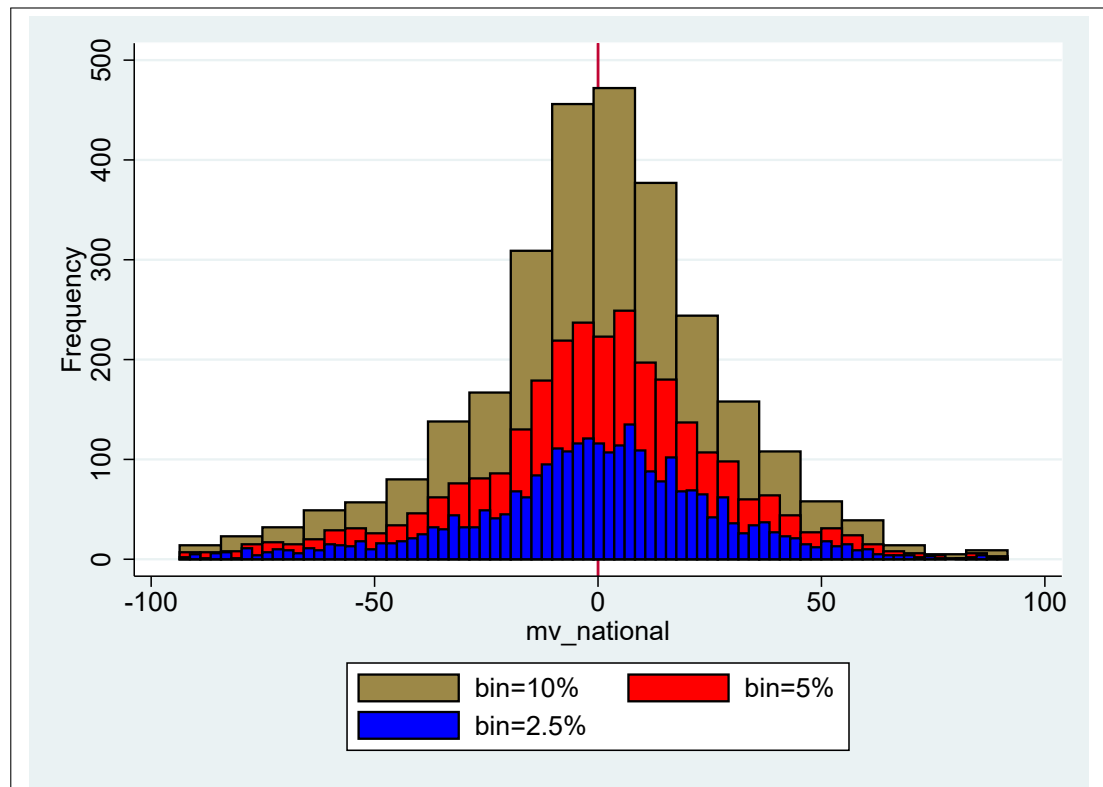
Notes. Municipalities below 5000 (i.e. municipalities not constrained by fiscal rules). Electoral terms between 2000 and 2012. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. Description of sample: Mafia index>median = No if municipality is located in a province with a low presence of Mafia style criminal organizations. Mafia index>median = Yes if municipality is located in a province with a high presence of Mafia style criminal organizations. The mafia index comes from Calderoni (2011). Treatment variable: *National Party* is a dummy variable =1 if the mayor is affiliated to a national political party. Region and term FE included in all columns. Municipal covariates included in all columns: pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; income = log of income per capita. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.

Figure 3.1: Percentage of party-affiliated mayors in Italian municipalities



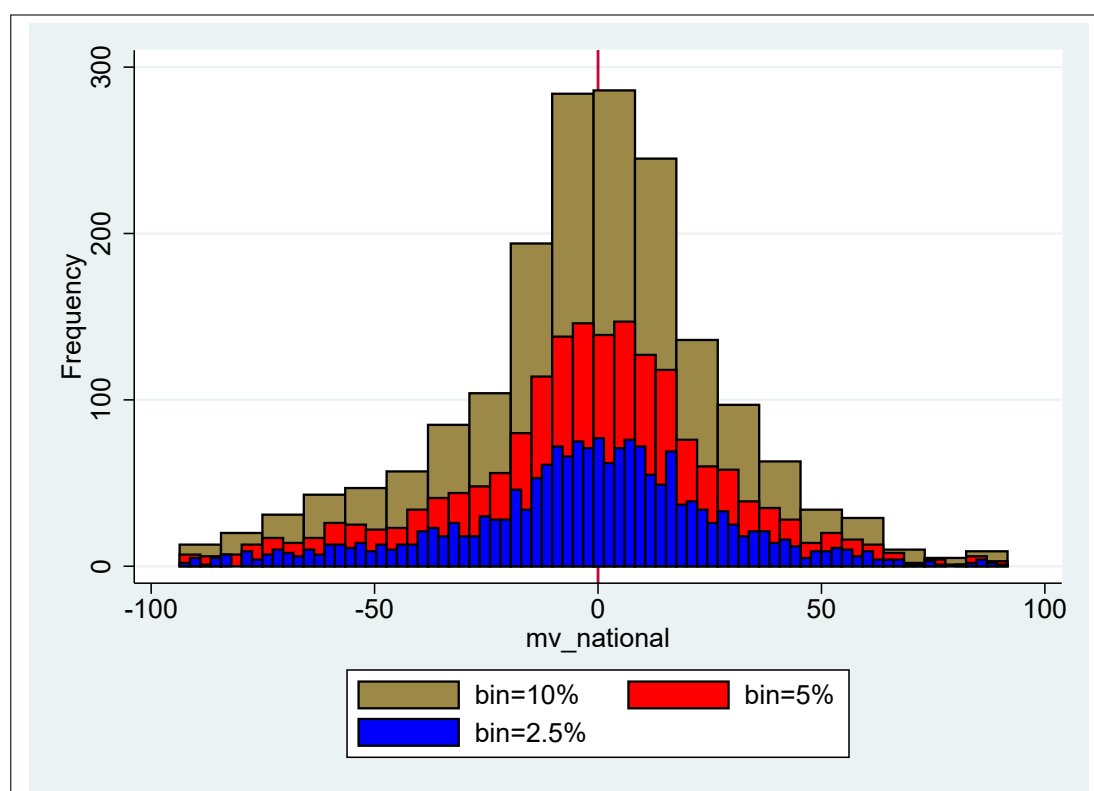
Notes. All municipalities below 15000 inhabitants. Years from 1996 to 2014. Horizontal axis: years. Vertical axis: % of mayors who are affiliated to national political parties.

Figure 3.2: Frequency of margin of victory in mix electoral competitions



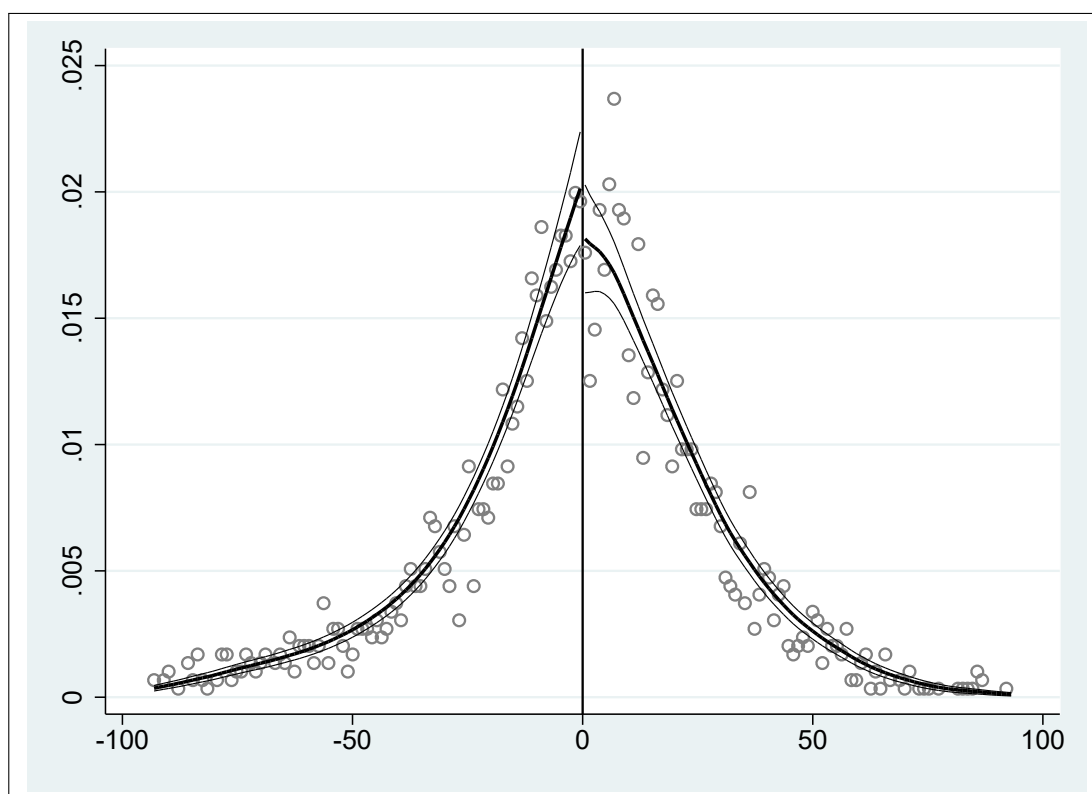
Notes. All municipalities below 15000 inhabitants. Electoral terms from 2000 to 2012. Frequency of municipal elections between 2000 and 2012. $MV_{it} > 0$ when the winning candidate is from a national party, $MV_{it} < 0$ when the winning candidate is independent.

Figure 3.3: Frequency of margin of victory in mix electoral competitions



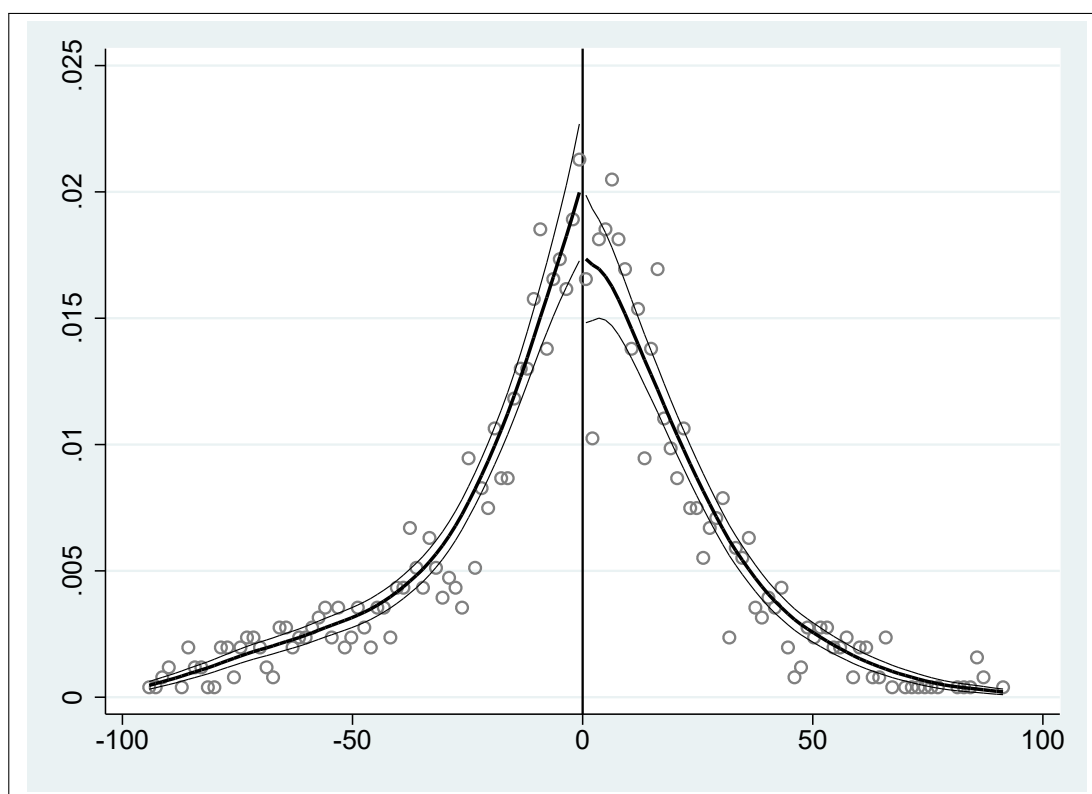
Notes. All municipalities below 5000 inhabitants. Electoral terms from 2000 to 2012. Frequency of municipal elections between 2000 and 2012. $MV_{it} > 0$ when the winning candidate is from a national party, $MV_{it} < 0$ when the winning candidate is independent.

Figure 3.4: McCrary (2008) Test



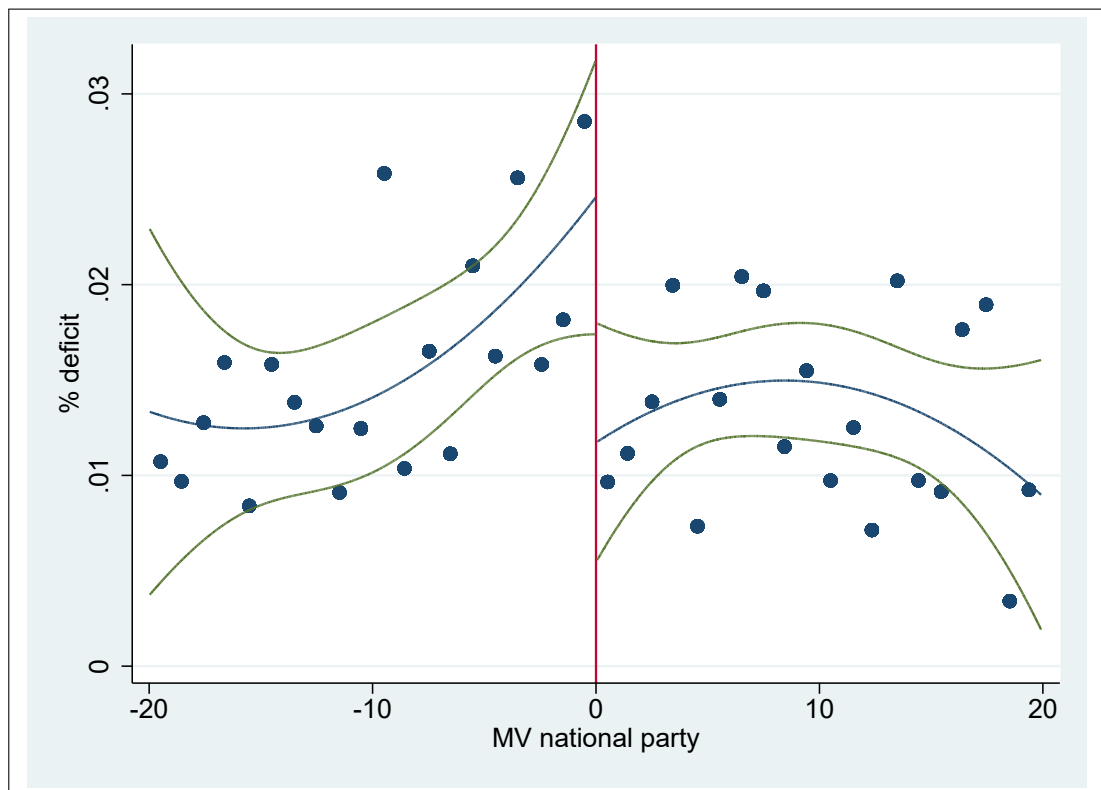
Notes. All municipalities below 15000 inhabitants. Electoral terms from 2000 to 2012. Frequency of municipal elections between 2000 and 2012. $MV_{it} > 0$ when the winning candidate is from a national party, $MV_{it} < 0$ when the winning candidate is independent. Discontinuity estimate: point estimate -0.112, standard error 0.086 and t-statistic -1.297.

Figure 3.5: McCrary (2008) Test



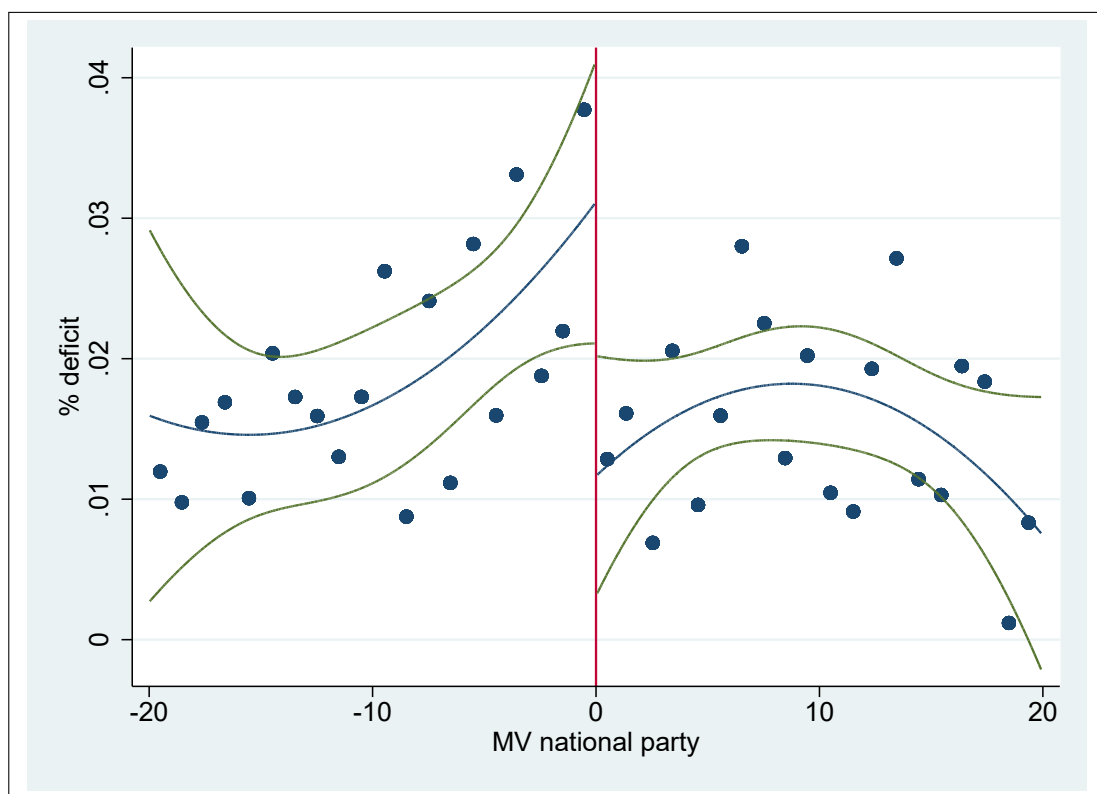
Notes. All municipalities below 5000 inhabitants. Electoral terms from 2000 to 2012. Frequency of municipal elections between 2000 and 2012. $MV_{it} > 0$ when the winning candidate is from a national party, $MV_{it} < 0$ when the winning candidate is independent. Discontinuity estimate: point estimate -0.157, standard error 0.108 and t-statistic -1.461.

Figure 3.6: The effect of national party on fiscal discipline



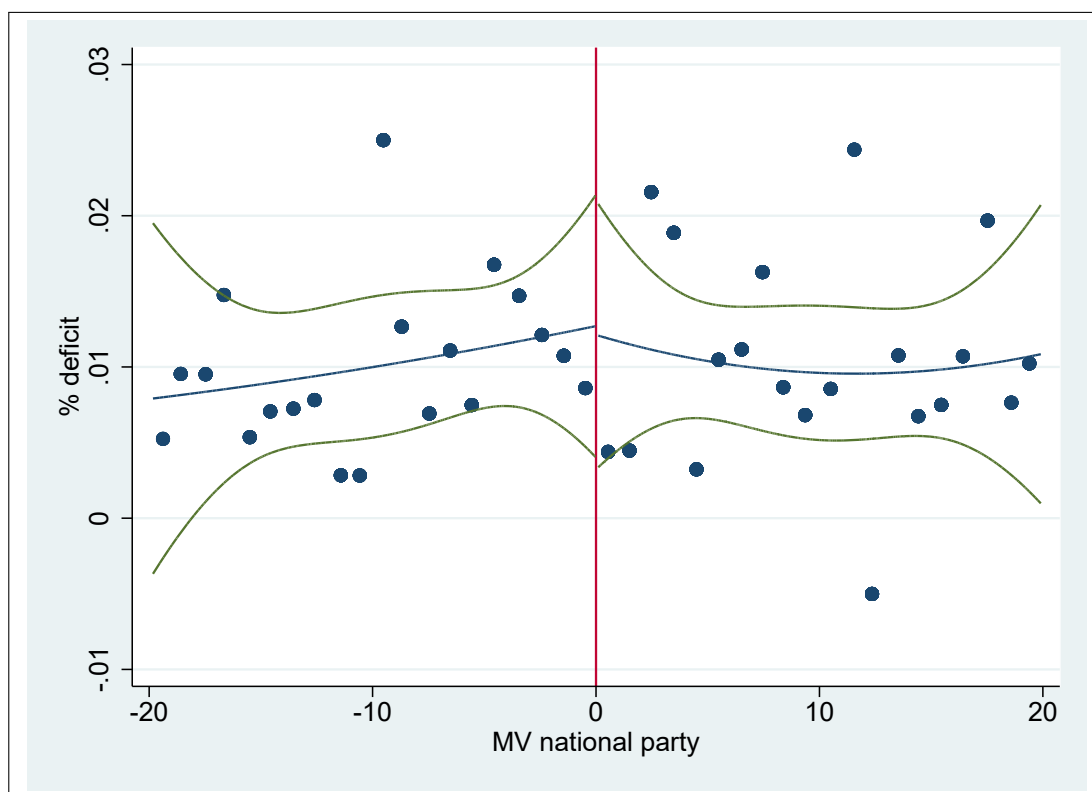
Notes. RDD estimates. All municipalities below 15000 inhabitants. Electoral terms from 2000 to 2012. Horizontal axis: margin of victory in mixed electoral competitions between party-affiliated mayors and independent ones. Vertical axis: average deficit as a fraction of total municipal revenues. Scatter points are averaged over bins of 1 % of the margin of victory. The central blue line represents a split second-order polynomial of the outcome variable in the the margin of victory, fitted separately on each side of the threshold. The green lines represent the 95 percent confidence interval.

Figure 3.7: The effect of national party on fiscal discipline, municipalities below 5000



Notes. RDD estimates. All municipalities below 5000 inhabitants. Electoral terms from 2000 to 2012. Horizontal axis: margin of victory in mixed electoral competitions between party-affiliated mayors and independent ones. Vertical axis: average deficit as a fraction of total municipal revenues. Scatter points are averaged over bins of 1 % of the margin of victory. The central blue line represents a split second-order polynomial of the outcome variable in the the margin of victory, fitted separately on each side of the threshold. The green lines represent the 95 percent confidence interval.

Figure 3.8: The effect of national party on fiscal discipline, municipalities above 5000



Notes. RDD estimates. All municipalities between 5000-15000 inhabitants. Electoral terms from 2000 to 2012. Horizontal axis: margin of victory in mixed electoral competitions between party-affiliated mayors and independent ones. Vertical axis: average deficit as a fraction of total municipal revenues. Scatter points are averaged over bins of 1 % of the margin of victory. The central blue line represents a split second-order polynomial of the outcome variable in the the margin of victory, fitted separately on each side of the threshold. The green lines represent the 95 percent confidence interval.

Appendix

This Appendix provides additional results and robustness checks, which are also discussed in the paper. In particular, I report the following Tables:

- Table A1: Discontinuities in municipal and mayoral characteristics, RDD estimates, municipalities below 5000

Table A1: Discontinuities in municipal and mayoral characteristics, RDD estimates
Municipalities below 5000

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A: Municipal characteristics + past deficit</i>								
<i>(Nationalparty)</i>	population -0.028 (0.084)	elderly index -0.151 (0.142)	# firms 0.002 (0.003)	income -0.034 (0.028)	% college -0.002 (0.003)	past deficit 0.006 (0.006)	past deficit last year 0.006 (0.009)	deficit first year -0.017 (0.010)
Bandwidth Observations	13.33 785	12.13 731	18.83 1,015	18.28 996	16.68 931	21.80 1,049	18.67 772	15.93 896
<i>Panel B: Municipal characteristics</i>								
<i>(Nationalparty)</i>	area -3.046 (3.632)	altitude -12.108 (31.010)	latitude 0.016 (0.308)	longitude 0.553 (0.366)	% foreign 0.005 (0.006)	newspapers -4.524 (4.277)	mafia index -1.313 (1.657)	# candidates -0.137 (0.104)
Bandwidth Observations	16.16 902	18.36 985	18.19 983	16.57 918	15.47 867	17.08 932	20.63 1,075	17.73 976
<i>Panel C: Mayoral characteristics</i>								
<i>(Nationalparty)</i>	female 0.059 (0.038)	age -1.078 (1.226)	postgraduate -0.005 (0.070)	skill job 0.059 (0.058)	unemployed 0.009 (0.045)	term limit 0.033 (0.051)	political experience 1.087 (0.787)	# seats -0.044 (0.186)
Bandwidth Observations	19.48 1,043	19.50 1,043	13.86 803	15.83 892	18.01 986	13.20 779	14.02 810	16.91 945

Notes. Estimation by RDD-LLR using the Calonico, Cattaneo and Titiunik (2014a, 2014b) optimal bandwidth h selector. All specifications include a linear control for the margin of victory of a national party on each side of the discontinuity and the optimal bandwidth. Term FE included in all columns. All municipalities below 5000 inhabitants. Electoral terms between 2000 and 2012. Definition dependent variables Panel A: pop = log of municipal population at the beginning of the electoral term; elderly index = ratio of municipal population above 65; firms = number of firms per capita at municipal level; income = log of income per capita; % college = percentage of population with a college degree; past deficit = previous electoral term average deficit as a fraction of total revenues; past deficit last year = previous electoral term deficit as a fraction of total revenues measured in the last year of the term; deficit first year = deficit as a fraction of total revenues in the first year of the actual electoral term. Definition dependent variables Panel B: area = municipal area in square kilometers; altitude = altitude of the municipality; latitude = latitude of the municipality; longitude = longitude of the municipality; % foreign = percentage of foreign population living in the municipality; newspapers = number of non-sport daily newspapers sold for every 1000 people; mafia index = index for the presence of Mafia style criminal organizations at the provincial level; # candidates = number of candidates at the municipal level. Definition dependent variables Panel C: female = 1 if mayor is a woman; age = age of mayor at the beginning of the term; postgraduate = 1 if mayor has a college degree; skill job = 1 if mayor worked in a high skill occupation in the past; unemployed = 1 if mayor is unemployed; term limit = 1 if mayor is at the second term (i.e. mayor is term limited); political experience = years of past political experience of the mayor at any level of politics; #seats = number of seats in the council for the mayor's coalition. Robust standard errors clustered at the municipality level are in parentheses. Significance at the 10% level is represented by *, at the 5% level by **, and at the 1% level by ***.