Research Project:
The Role of Personal Interests in Tax Manipulation

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Abstract

Do politicians manipulate fiscal instruments for personal interests? The goal of this paper is to explore whether a conflict of interest emerges in fiscal decision, at the local level. We focus on local personal income tax (PIT), annually decided by Italian mayors, which is a progressive instrument that allows administrators to set different tax rates to diverse wage groups. We exploit discontinuities in mayors income levels, based on population thresholds, that determine their wage brackets, and we study, in an RDD setting, whether mayors systematically apply lower rates to their own tax bracket. The empirical analysis focuses on 5,000 inhabitants threshold, where mayors' income sharply moves from the second to the third wage bracket. Preliminary results suggest that mayors whose income ends up in the third bracket tend to tax less third group, compared to mayors of similar cities that, instead, are subject to second bracket tax rate. The effect is significant and sizeable as it amounts between 39% and 65% of dependent variable mean. These preliminary results suggest that electoral incentives are not the unique source of strategic behaviour and that personal interests can play a role in fiscal manipulation.

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1 Introduction

What does explain fiscal manipulation? Strategic decision of taxes has been deeply documented by Political and Public Economics literature in several different aspects and many studies provide evidence on this phenomenon at the national and local level. Main incentives under fiscal manipulation are electoral: politicians may exploit fiscal instruments to maximize their probability to be re-elected and this can lead to the phenomenon of political budget cycle, the tendency to reduce taxes or increase public expenditures or transfers before elections, in order to gain political support; many papers document the phenomenon at the national (Alesina et al. 1997, Persson, Tabellini 2002) and at the local level (Akhmedov, Zhuravskaya 2004, Drazen, Eslava 2008). Nevertheless, there can be other, more subtle, reasons, motivating an administrator to manipulate taxes, one of these is personal interest. Despite there are many anecdotal evidences suggesting that politicians take into account their private and financial interests in taking fiscal decisions[1], there are very few contributions, to the best of our knowledge, focusing on this issue. This lack is mainly due to the difficulty to identify politicians personal interests apart from few, notorious, cases. The goal of this project is to fill this gap in Political Economy literature studying whether personal interests of politicians lead to fiscal manipulation at the local level, with an identified analysis. The objective is to shed light on another possible, and potentially important, source of fiscal strategic behaviour, unexplored so far.

The tax we are focusing in this project is the local personal income tax which is a surcharge to the national income tax in Italy (Bordignon et al. 2015). After 2011, the tax became progressive, meaning that mayors can choose to introduce different rates for different income groups, tracing brackets of national income tax. This allows local politicians to tax differently distinct portions of population with different income levels: Italian system has five tax brackets €0-15,000, €15,001-28,000, €28,001-55,000, €55,001-75,000 and more than €75,001. We want to study local surcharge with the aim of exploring whether local administrators manipulate the tax in order face low rates on their personal incomes and to pay a lower amount of taxes. Mayors, indeed, are required to pay the income tax, as well as the local surcharge, on their institutional wage. In order to explore this, we exploit an institutional feature of Italian system: income of local administrators is based on population of the city he administers and varies sharply around several population thresholds[2] (Gagliarducci, Nannicini 2013). In this peculiar setting we can exploit sharp increases in mayors' remuneration and see whether these are associated with manipulation of the surcharge. In particular, we want to study whether mayors whose income ends up in a certain tax bracket, tend to tax that bracket less than mayors, of comparable cities, whose incomes are located in the preceding tax bracket. Table 1 contains different population groups that determine mayors' income and number of cities for each group. Moreover, it shows tax brackets associated to each group: in cities with less than 5,000 inhabitants mayors' income is placed in the second bracket while after 5,000 inhabitants the income raises and shifts mayor's income from second to third bracket; another shift takes place after 100,001 inhabitants where we move to the fourth bracket and, lastly, after 500,001 inhabitants the last bracket is reached.

[1] There are many anecdotes in recent Italian history about strategic political decisions motivated by personal interests. One case is due to 2004 and 2005 budget laws (Law n. 350/2003, art. 4, comma 153 and n. 311/2004, art. 1, comma 246) that introduced an incentive for cable-box purchases in Italy. The law was introduced by center-right government held by Silvio Berlusconi and main beneficiary was a society whose majority stakeholder was Paolo Berlusconi, brother of the prime minister. Another anecdote is about inheritance tax: this was reformed in 2006 by the centre-left government held by Romano Prodi and leads to an increase in inheritance fees. After the reform, though, it became known that the prime minister made a consistent donations to his sons before the introduction of the law.

[2] This is not the unique criterion affecting income of mayors; indeed this depends on other factors such as budget performances of the municipality and occupational status of the mayor (whether she/he is a dependent or an autonomous worker).

In the analysis we want to focus on the 5,000 inhabitants threshold which is particularly important: first, it is one of the three cutoffs where mayors' wage changes together with tax bracket, second, it is the only one where sample size is large enough for a statistical analysis, in both sides of the cutoff. The analysis consists in a sharp regression discontinuity design where we compare tax rate chosen for second and third income brackets between cities above and below 5,000 inhabitants threshold. One possible concern can be that mayors' income can include other wages such as rents from financial assets or real estates as well as wages from the "civic" occupation. This could raise his taxable income and he could be subject to the rate of an higher tax bracket than the one assumed. This will probably attenuate our estimates but it won't be a concern for the identification strategy. A similar concern can be whether mayors are eligible for deductions lowering their taxable incomes; in case of large deductions it is even possible that mayors of cities above the 5,000 inhabitants threshold end up in the precedent income bracket. This can generate additional noise in our estimates, further attenuating the effect. In these regards, what we are capturing in this analysis is an intention to treat rather than a local average treatment effect, also the RDD analysis could be viewed as fuzzy rather than a sharp one.

Table 1: Mayors' income and tax brackets

Population	Number of cities (in 2011)	**Monthly** income of mayor	**Yearly** income of mayor	**Tax bracket** of mayor's income
Up to 1,000	2,152	€ 1,290	€ 15,480	II bracket [15,001-28,000]
Between 1,001-3,000	2,525	€ 1,450	€ 17,400	II bracket [15,001-28,000]
Between 3,001-5,000	1,111	€ 2,170	€ 26,040	II bracket [15,001-28,000]
Between 5,001-10,000	1,152	€ 2,790	€ 33,480	III bracket [28,001-55,000]
Between 10,001-30,000	858	€ 3,100	€ 37,200	III bracket [28,001-55,000]
Between 30,001-50,000	161	€ 3,460	€ 41,520	III bracket [28,001-55,000]
Between 50,001-100,000	89	€ 4,130	€ 49,560	III bracket [28,001-55,000]
Between 100,001-250,000	32	€ 5,010	€ 60,120	IV bracket [55,001-75,000]
Between 250,001-500,000	6	€ 5,780	€ 69,360	IV bracket [55,001-75,000]
Over 500,001	6	€ 7,800	€ 93,600	V bracket [over 75,000]

Preliminary results of the analysis document the presence of consistent fiscal manipulation for personal reasons, in the setting of Italian municipalities. Mayors of cities above the 5,000 inhabitants threshold tend to introduce lower tax rates on third tax bracket compared to mayors below the threshold and the effect is sizeable and statistically significant as it amounts between 39% and 65% of dependent variable mean, depending on the specification. Moreover, there are no significant differences in other positions of the tax structure between cities around the threshold. In terms of compliers, it turns out that cities introducing more progressive tax schemes, *i.e.* with higher jumps between tax brackets, show higher levels of manipulation, with an average effect four to ten times larger than the one found in the main specification. Secondly, we document the presence of consistent heterogeneous effects in this relation as strength of manipulation raises when mayors are young (under-40), autonomous workers or highly educated (holding at least an University degree); these outputs seem to suggest that manipulation is stronger when mayors are less likely to have additional incomes (young), can easily hide or evade part of their revenues (autonomous workers) or are more skilled, informed and aware about fiscal dynamics (educated).

This research proposal is structured as follows: section 2 presents related literature to this project. Section 3 discusses institutional setting and data. Section 4 presents the identification strategy. Section 5 shows preliminary results and section 6 concludes and discusses further developments.

2 Literature review

This projects is related to several empirical papers in Political and Public Economics. First, there is a large set of studies exploring manipulation of public balance sheets for electoral purposes. These contributions focus on the practice of "political budget cycle" that leads to cyclical manipulation of taxes and public expenditures in order to please voters as elections approach. On the one hand, the literature documents the phenomenon from a cross-country perspective (Alesina et al. 1997) and describes how this practice is affected by electoral and political systems (Persson, Tabellini 2002). On the other hand, there is a large literature studying the issue at the local level. Many papers uncover consistent balance sheets manipulation in several countries involving public finance variables such as taxes (Kneebone, McCKenzie 2001, Alesina, Paradisi 2015), public expenditure (Drazen, Eslava 2008) and public transfers (Akhmedov, Zhuravskaya 2004). Also, few papers inspect which institutional frameworks promote or weaken the practice (Rose 2006, Benito et al. 2013, Repetto 2016). This large literature underlines that politicians tend to use fiscal instruments to increase their probability of re-elections or to improve their future political career but it does not take into consideration other incentives politicians may have to manipulate balance sheets. Our project contributes to this literature as it focuses on a new aspect: personal interests of politicians, leading them to manipulate taxes in order to obtain better fiscal treatments. This is a very important and intuitive aspect to consider that, however, remained rather unexplored, due to lack of data. Moreover, we explore the issue at the local level and we aim for a causal relation.

A second literature related with this project is the one studying wages of politicians. These papers explore how wages of elected affects their performances in office as well as political selections. Main results suggest that higher wages improve politicians quality, measured with personal characteristics, such as education, previous profession or political experience and lead to better political performances (Ferraz, Finan 2009, Gagliarducci, Nannicini 2013). Our project contributes to this literature as it underlines the impact of politicians wage on their incentive to manipulate taxes for personal interests.

Finally, this project contributes to the large literature on conflict of interest of politicians: this studies focus mostly on members of national parliaments and explore different aspects. First, there is convincing evidence about private returns from political office: many papers show that members of parliaments (MPs) may collect consistent post-congressional earnings (Eggers and Hainmueller 2009, Diermeier, et al. 2005, Parker, Parker 2009) and that these extra-revenues raise with political relevance (Parker 1992). Second, there is evidence the firms connected with politicians face improvements in their operational and stock-market performances (Goldman et al. 2009a, Niessen, Ruenzi 2010). Moreover, positive effects on firms have been demonstrated when business owners themselves come to have a political office (Bunkanwanicha, Wiwattanakantang 2009, Faccio 2006). Third, many contributions explore mechanisms and find that connected firms happen to have better access to credit (Khywaya, Mian 2005), higher probability to be bailed out by the government (Faccio et al. 2006), larger offering prices in the IPO market (Francis et al. 2009) and to experience an increase in procurement contracts (Goldman et al. 2009b). Finally, several papers raise the issue whether moonlighting affects MPs performances in office: results suggest that this is associated with a reduction in political effort (Eggers, Hainmueller 2009, Gagliarducci et a. 2010). This project contributes to this literature in two aspects: on the one hand, it is one of the few papers with a local focus as it explores conflict of interest of city mayors; on the other hand, we study a very specific setting where politicians face a conflict of interest in deciding their own tax rate and we can trace their fiscal decision given their exposure to the tax. Very few papers explore fiscal conflict of interest, with a causal analysis, at this very disaggregated administrative level.

3 Institutional setting and data

We will focus on the local surcharge to the Italian income tax, the IRPEF (*Imposta sul reddito delle persone fisiche*). This tax is a direct and personal tax whose taxable income is the sum of all gross incomes of an individual and it is approved yearly by the municipal council (*Consiglio comunale*), under mayor's proposal. After 2011, the surcharge was reformed and it was introduced the possibility to set it progressively: the mayor could set a different tax rate, in the range 0-0.8%, to the different IRPEF wage brackets, as well as introducing an exemption threshold, below which the rate is zero. The surcharge is the third source of local revenues, after the real estate and the waste tax, and its importance grew quickly from its introduction in 1999. Moreover, the tax is a salient fiscal instrument for taxpayers and it is considered a particularly unpleasant tax in Italian municipalities. Table 2 shows average rates for the five income brackets: column 2 considers the whole sample of cities, while columns 3 and 4 focus, respectively, on cities that have a surcharge higher than zero and on cities that introduced always flexible rates, *i.e.* a multiple rates structure. We can note that the tax is progressive, on average, as the marginal rate raises as income increases and that progressivity is more marked for sub-samples with a positive surcharge and with a flexible rate. In this research proposal we make use of data on local surcharge for the time span 2012-2015. We have information on tax rates associated to income brackets as well as exemption thresholds, when included, for all Italian municipalities. Furthermore, we have data on number of tax-payers and aggregate amount of income declared in each wage bracket for our time span.

On the other hand we focus on institutional wages of mayors. These depends on population as expressed by Law Bassanini, n. 265 03/08/1999, and, as already discussed in the introduction, they sharply change at certain population thresholds, according to most recent national census. We have data on 2011 census, the most recent one, determining mayors' income in the time span in analysis. Finally we have data on mayors and councillors characteristics (age, gender and education), on local politics (last elections turnout and vote share of most voted candidate) on local public finance (fees, taxes and special tariffs per capita as well as current and capital expenditures per capita) and on cities demographics (logarithm of population, share of immigrants and share of population in age groups 0-14/15-25/26-65/more than 66).

Table 2: Surcharge rate for each wage bracket

Wage bracket	Surcharge rate (all cities)	Surcharge rate (citie with positive surcharge)	Surcharge rate (cities with flexible rates)
I bracket [0-15,000]	.366 %	.445 %	.254 %
II bracket [15,001-28,000]	.472 %	.573 %	.538 %
III bracket [28,001-55,000]	.484 %	.588 %	.633 %
IV bracket [55,001-75,000]	.494 %	.600 %	.714 %
V bracket [over 75,001]	.500 %	.607 %	.769 %
N	32,287	26,593	11,390

Notes: Cities with flexible rates are those where a flexible rate (multiple rate structure) was introduced.

4 Identification strategy

In this project we want to explore whether local politicians tend to tax less wage brackets where their own income is located. We could not simply study whether mayors with higher wages tend to tax less rich people than mayors with lower wages, comparing the two groups

with OLS, because this could generate biased estimates, due to endogeneity issues: it could be, for instance, that mayor's wage is correlated with local income distribution and this is likely to affect incentives to tax middle and high incomes; furthermore, remuneration of mayors can be related with city size which could affect the use of the surcharge and the tax structure as well. Thus, we exploit the peculiar Italian setting. We make use of two sources of variation: on the one hand, we want to exploit population thresholds that determine institutional wages of mayors; on the other hand, we want to use variation generated by income brackets in rate structure. Furthermore, we want to exploit 5,000 inhabitants threshold where mayors' wage jumps from € 26,040 (yearly gross) to € 33,480 (yearly gross) and this rise corresponds to a shift from the second to the third income bracket. We set the identification strategy as a sharp regression discontinuity design (RDD) where the forcing variable is city population, the treatment is mayor's income (and associated tax bracket) and the dependent variable is the local difference in tax rates between second and third brackets. Main identifying assumption in this model is that cities around the cutoff are not systematically different in their tax structure, with particular attention to the jump from second to the third bracket. In other words, it is required that all relevant factors for local tax structure vary smoothly around the cutoff.

Many possible threats to this identification strategy can arise. First, as discussed by Eggers et al. (2015), one pitfall in the use of population-threshold RDD can be that the same threshold is used to determine multiple policies, and this case is not an exception. Indeed, other two policies move sharply around 5,000 inhabitants threshold: on the one hand, wage of executive officers sharply changes from an amount equal to 15% of mayor's wage to 45% of it. We don't think this can affect tax structure in the city as executive officers are not directly involved in decision process of the surcharge, but just in local government of the city. On the other hand, balanced-budget rule (partially) changes at this threshold: in particular, Italian stability pact imposing a gradual reduction in municipal deficit applies only to municipalities above 5,000 inhabitants. Nevertheless, this restriction only holds for 2012, as the policy changed from 2013 on and the threshold has been decreased to 1,000 inhabitants. Thus, we can control for this in the empirical analysis excluding 2012 to isolate the effect of stability pact from the one of wage increase. A second threat can be the risk of manipulation around the threshold since cities can self-select in order to get better policies, as pointed out in the European context by Eggers et al. (2015). Nevertheless, this should not be a problem in our case as mayors' wage depends on population data from latest census, taking place in 2011, before the surcharge became progressive. Thus, it is implausible that mayors tried to manipulate figures to get better treatment before the policy took place. Finally, we run standard tests for continuity of covariates around the threshold of 5,000 inhabitants across different wage brackets to provide evidence that all relevant factors, but mayors' wage bracket, vary smoothly around the cutoff.

The RDD strategy requires to estimate, by local linear regression (LLR), the following model (according to Calonico et al. 2014 and Gelman, Imbens 2014):

$$y_{it} = \alpha + \beta_1 Pop_{it} + \beta_2 Wage_{it} + \beta_3 Pop_{it} * Wage_{it} + \gamma_t + \delta_r + \zeta X_{it} + \epsilon_{it} \qquad (1)$$

With y_{it}, the dependent variable capturing the difference in surcharge rates from second to third brackets, $\tau_{III} - \tau_{II}$, in municipality i in year t. Pop_{it} is a dummy equal to one whether i's population is above 5,000 inhabitants; $Wage_{it}$ is a dummy equal to 1 if the mayor of i ends up into the third income bracket. γ_t are year fixed effects and ζ_r are macro-region fixed effects. Finally, X_{it} includes mayors and councillors characteristics (age, gender and education), which are important factors to control for in this setting as there is evidence that mayors and candidates characteristics modify around the cutoff: Gagliarducci, Nannicini (2013) show that, after 5,000 population threshold, mayors and candidates are more educated and more likely to be white collar. Moreover, X_{it} includes data on local

politics (last elections turnout and vote share of most voted candidate), to control for relative power of mayor in city council, and on local public finance (fees, taxes and special tariffs per capita as well as current and capital expenditures per capita) to capture dimension and wealth of municipality; this is another important dimension since Gagliarducci, Nannicini (2013) show that local management is more efficient after the threshold, in terms of revenues, public expenditure and speed of payment and collection. Lastly, X_{it} includes demographic characteristics (logarithm of population, share of immigrants and share of population in age groups 0-14/15-25/26-65/more than 66). The coefficient we are interested in is β_3 that captures the effect of having a mayor that is located in the third income bracket in cities close to the threshold $Pop_{it} = 5,000$. The implementation of the RDD-LLR model focuses on the sub-sample of municipalities in the interval $Pop_{it} \in [-lh, +rh]$, with separate optimal bandwidths for the two sides of the cutoff, $[lh\ rh]$, according to Calonico et al. (2014).

Finally, in order to provide a placebo to the main analysis, we study the effect of the treatment on jumps in other tax brackets different from that inspected in model (1). In particular, we run model (1) with a different set of dependent variables capturing the rate change from second to first bracket ($\tau_{II} - \tau_I$), from fourth to third bracket ($\tau_{IV} - \tau_{III}$) and from fifth to fourth bracket ($\tau_V - \tau_{IV}$). This exercise guarantees that the effect involves only wage groups where mayors' wages are located and it excludes the presence of other factors affecting the entire tax structure.

5 Preliminary results

5.1 Impact of personal interests on tax decision

Table 3 contains preliminary results from the analysis of model 1. The table is organized in two panels, focusing on different sub-samples. Panel A considers municipalities with a positive level of surcharge rate as we exclude municipalities that never set the surcharge. As already discussed, the dependent variable of our interest captures the rate difference between second and third income brackets, "Second rate gap" (in column 2), in a certain municipality. Moreover, we include all other tax rate differences as placebo: "First rate gap" captures rate difference between first and second brackets, "Third rate gap" between third and fourth brackets and "Fourth rate gap" between fourth and fifth brackets, respectively column (1), (3) and (4). Optimal bandwidths are not symmetric and this is mainly due to asymmetries in density of cities around the cutoff. Two main results emerge from the table. On the one hand, it seems that surcharge rate raises less from second to third bracket in cities where the mayor is subject to the third bracket tax rate, compared to similar cities where, instead, the mayor is located in the second bracket. In other words, tax rate difference between second and third brackets is significantly lower above the cutoff, where mayors' income ends up in the third bracket. The average effect on rate difference is not negligible as it is equal to 65% of dependent variable mean and to 21% of variable standard deviation. On the other hand, it does not emerge any discontinuity in other tax rate differences around the cutoff: focusing on columns (1), (3) and (4) we can never reject the null hypothesis that average rate gaps are equal around the threshold. Moreover, as tax rates are continuous in every other position of the tax structure, it is implausible that the result is due to some other factors affecting local finance. These results are shown graphically in Figure 1: it emerges clearly the negative discontinuity in rate difference from second to third tax bracket (top-right plot) as well as the continuity in all other rate differences. These results seems to suggest that mayors that are subject to the third bracket rate tend to keep that rate lower than those mayors that face second bracket rate: these outputs uncover a new form of fiscal manipulation motivated by personal interests. In Panel B of Table 3, we study model 1 with the sample of cities that set a flexible rate (multiple rates structure): similar results

emerge from the table, also the marginal effect on the second rate gap is almost four times larger than in Panel A. These results suggest that municipalities with higher use of flexible rates are those where manipulation for personal interests actually takes place. Moreover, despite the sizeable reduction in the sample, these estimates are more precisely estimated than those of Panel A.

In Table 4 we show additional analyses performed on our main variable, "Second rate gap", for both samples shown in Panel A and B. On the one hand, columns (2)-(4) contain several tests with the aim of checking the robustness of our main result: column (2) presents the main analysis performed with a quadratic local polynomial instead with the standard linear version, column (3) and (4) show the output with, respectively, half and two times the optimal bandwidth. In (almost) all these cases main result emerge. On the other hand, in columns (5)-(6) we try to better understand which cities manipulate more fiscal instruments. In order to do that, we divide our sample in terciles according to the variable "Second rate gap" itself, to see whether compliers are located among cities using more the surcharge, with a steeper tax structure[3]. Column (5) and (6) contain, respectively, analyses excluding first and first two terciles: it is evident that as we exclude cities with less steep tax structure marginal effect becomes stronger. This suggests that there are consistent differences in level of fiscal manipulation and that cities where the local tax structure is more progressive are those with higher level of manipulation around the threshold.

As a second analysis we raise the issues whether there are heterogeneous effects in this setting. It is plausible to think the marginal effect changes significantly as mayors' characteristics modify. First, we can try to handle, in this manner, the problem due to lack of data on private mayors income: we expect that mayors with limited, or no, private income are more likely to be compliers as those below the cutoff will be more likely in the control group (second rate bracket) while those above in the treatment group (third rate bracket). In order to explore this aspect, we run model 1 on sub-sample of cities with young/non-young mayors (under-40/over-40), under the assumption that young individuals have less sources of revenue as well as lower private incomes; Table 5 contains results for this analysis: these seem to confirm the conjecture as the effect is larger, and more precise, for young mayors as well as stronger than those found in main analysis (Panel A of Table 3): in particular, the coefficient is more than two time larger and it is equal to 129% variable mean. A second hypothesis we test is the one that mayors that are more skilled, informed about taxes and aware about fiscal mechanisms are those more likely to manipulate taxes for private interests. We test this conjecture in two ways: on the one hand, we study model 1 dividing mayors population between dependent and autonomous workers. We assume that autonomous workers, paying directly their taxes, are more informed and aware about fiscal mechanisms and so potentially more skilled in doing manipulation; differently from dependent workers, whose employers are in charge of paying taxes. Moreover, autonomous workers have more chances to hide or evade part of their revenues, and so to declare lower incomes; this makes them more likely to be compliers. Results from Table 6 confirm our conjecture: the effect is negative for both categories but it is only significant for the group of autonomous workers, and the coefficient is larger than in the basic specification (Panel A of Table 3). As a second evidence, we study the same model splitting for education level: mayors with/without an University degree. There is anecdotal evidence, indeed, that highly educated people are more informed about the surcharge and aware about its importance in municipal budget. Table 7 shows results suggesting that mayors with high education result to manipulate more the surcharge, compared with those with low education, and the effect is larger than main specification and statistically significant. This result corroborates the idea that more skilled and informed mayors tend to manipulate more fiscal instruments for personal reasons. One

[3]We performed this analysis only for sample of cities in panel B as we are focusing on cases where the surcharge has different tax rates for different income groups.

possible concern comes from the fact that education level is not balanced around the cutoff, as Gagliarducci, Nannicni (2013) show that above the 5,000 inhabitants threshold mayors are significantly more educated. This does not represent a problem for our identification as it is implausible that education level is correlated with rate jump from second to third bracket. If anything, we expect that more educated politicians are more aware about social benefit of redistributive taxation and tend to set more steep tax structures with larger jumps between income brackets: this can represent an attenuation bias in this case.

5.2 Placebo analysis

In this section, we perform two placebo tests to make sure main effects does not depend on other observable or unobservable factors. First, we focus on the threat coming from multiple policies varying at the 5,000 inhabitants threshold. As already anticipated in section 4, until 2012 (included) domestic stability pact applies only for municipalities with more than 5,000 inhabitants. And then, from 2013 on, the threshold decreased to 1,000. The stability pact is a balance-budget rule implying, for involved municipalities, less expenditure freedom and tighter fiscal regimes. The overlap of this policy with our treatment, although for one year, could be a problem as it is not implausible to think that fiscal constraints affect rate structure of the surcharge. In order to clean for the effect of the stability pact, we study main specification for the reduced time span 2013-2015, when stability pact apply to both sides of threshold; for that time span, we don't have any overlap in the 5,000 inhabitants threshold. Table 8 shows main outcome of the analysis, focusing on two different sub-samples, as main analysis. Two remarks can be done. First, same results as main model emerge: there is a significant discontinuity in the Second rate gap and tax rate vary continuously in all other rate differences. Second, the effect is stronger than main specification, for instance coefficient in Panel A is one fifth larger than coefficient of main analysis, and this is true for Panel B as well. These results suggest that partial overlap with the stability pact is not responsible for main results, instead it attenuates estimated coefficients and this is probably due to the fact that, when mayors above the cutoff are constrained and the one below are not, strategic behaviour after 5,000 threshold is attenuated by budget constraints. We can conclude that we should not be concerned about contemporaneous policy changes around the 5,000 inhabitants threshold.

Secondly, we test the crucial assumption in the RDD setting requiring that covariates vary smoothly around the cutoff. In this case, this requests to check whether there are discontinuities in factors varying around 5,000 threshold between second and third income bracket of tax scheme. We perform this analysis in Table 9 where we focus on three main variables varying between income threshold within a municipality: gross income declared (Panel A), number of tax-payers (Panel B) and number of tax-payers per-capita (Panel C). From the table it is evident that these factors vary smoothly across income brackets as there are no rate gaps significantly different between municipalities below/above the population threshold in analysis. This result further reassures us that the effect found is due to the jump in mayors income and it is not driven by any other factor.

6 Concluding remarks and further developments

The aim of this project is to uncover a new form of fiscal manipulation motivated by personal interests. There is plenty of anecdotal evidence showing that politicians take their private and financial interests in consideration when deciding policies but there are very few papers focusing on this issue in terms of fiscal manipulation in a local setting. In this contribution, we exploit the peculiar Italian setting and we focus on the local personal income tax, a progressive local fiscal instrument, decided annually by the mayor in each Italian municipality.

We make use of sharp discontinuities in mayors remuneration allocating them in different wage brackets and we study whether mayors whose income ends up in a certain bracket tend to tax that bracket less than mayors, of comparable cities, whose income turns out to be in the preceding tax bracket. We find evidence of consistent manipulation for personal interests: third bracket tax rate for cities above the threshold results to be systematically lower than those below, and the average effect is sizeable as it equals 65% of dependent variable mean. Moreover, the effect is stronger for cities that happen to have mayors that are young (under-40), autonomous workers and highly educated.

Nevertheless, there are many other aspects we should explore in order to improve the analysis. On the one hand, as already mentioned in the introduction, one visible weakness of this analysis is the fact that mayors can have other revenues, such as labour incomes, financial or real estate rents, that we cannot observe. These extra-revenues can move them to another, higher, tax bracket; this could lead some mayors, in principle allocated in the control group, to end up in the treatment one. On the contrary, some mayors in the treatment group could be eligible for deductions lowering their taxable income and placing them in the control group. These potential fuzziness in the analysis can consistently attenuate estimates and we would like to overcome it, at least partially. This is only possible including new data on mayors revenues into the dataset. One possible source can be Italian pension institute (*INPS - Istituto Nazionale Previdenza Sociale*): INPS database contains records of the population of dependent workers, and of some category of autonomous workers. Having access to this data would allow us to control for labour revenues, at least for dependent workers mayors. A second possibility to improve the analysis is exploiting one part of Law Bassanini, n. 265 03/08/1999, that establishes full institutional wage for autonomous workers and for dependent workers in leave of absence and half of it for dependent workers not in leave of absence. Having access to data on leave of absence for Italian mayors could allow us to identify those that do not perceive any other labour income and this could increase analysis precision. The source of these data is again Italian pension institute (*INPS*).

On the other hand, another potentially problematic aspect of the analysis is the magnitude of the effect. Found output is relevant if we compare it with average dependent variable level, but it turns out to be weak once we translate the coefficient in monetary terms: average amount saved because of fiscal manipulation by mayors situated above the threshold ranges between €12 and € 30 per year, depending on the specification[4]. This amounts are clearly very low to fully justify the discontinuity we identify in the data. One possible explanation can be that this attenuation is due to the fuzziness of the analysis that weakens consistently estimated coefficients. Secondly, this can be due to the presence of consistent heterogeneous effects able to dilute the average impact: we still need to explore many aspects such as ideological position of mayors, local political background (such as political competition, mayor term limit), social capital background and geographical location of the city. Finally, we may think that the effect is, partially, driven by some behavioural elements: the mayor is called to decide the tax rate he will be paying and he may tend, instinctively, to be lenient regardless of fiscal savings from that policy decision. Moreover, he may feel unconformable in making a decision with negative economic consequences for himself, and there could be the temptation to postpone, in the tax structure, the tax increase to avoid this self-punishment. Nevertheless, these explanations are plausible but, at the same time, very difficult to test in our setting.

This research proposal is aimed at shading new light on the practice of fiscal manipulation, in particular we uncover and document a new form motivated by private and personal

[4]This figures concern mayors above the threshold and they are computed assuming that they only perceive the institutional wage, € 33,480 per year. This approach is very conservative as it is likely that mayors above the 5,000 inhabitants cutoff declare an higher taxable income than this: in this case average fiscal savings from manipulation will be larger.

interests. Furthermore, we still need to deepen this result: on the one hand we have to properly quantify the magnitude of found effect and to identify the group of compliers, *i.e.* those cities that rely more on fiscal manipulation. On the other hand, we aim at clarifying main channels and motives under this new form of manipulation: whether it is purely motivated by fiscal saving concerns or whether there is room, at least partially, for behavioural components.

Table 3: RDD analysis on rate differences

Panel A: Cities with **positive surcharge**	(1)	(2)	(3)	(4)
	First rate gap	**Second rate gap**	Third rate gap	Fourth rate gap
	$\tau_{II} - \tau_{I}$	$\tau_{\mathbf{III}} - \tau_{\mathbf{II}}$	$\tau_{IV} - \tau_{III}$	$\tau_{V} - \tau_{IV}$
RD_Estimate	0.0000539	-0.00973	-0.000839	-0.00156
	(0.0179)	(0.00397)**	(0.00362)	(0.00214)
Outcome variable mean	.129	.015	.012	.008
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(1884 8014)	(2072 10030)	(1382 8171)	(1705 9850)
Observations	(3282 5029)	(3724 5524)	(2260 5066)	(2910 5489)
Panel B: Cities with **flexible rates**				
RD_Estimate	-0.0238	-0.0366	0.00214	-0.00701
	(0.0322)	(0.0130)***	(0.0111)	(0.00634)
Outcome variable mean	.284	.095	.080	.056
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(1602 12032)	(2180 8248)	(1059 12672)	(1162 13775)
Observations	(411 1213)	(593 1063)	(278 1220)	(314 1264)

Notes: Estimation by RDD-LLR using the Calonico et al. (2014) optimal bandwidth selector. Robust standard errors clustered at the municipal level. Set of controls includes mayors and councillors characteristics (age, gender, education), political controls (turnout in last elections and vote share of most voted candidate), economic controls (fees, taxes and special tariffs per capita as well as current and capital expenditures per capita), demographic controls (logarithm of population, share of immigrants and share of population in the age groups 0-14/15-25/26-65/more than 66) as well as year and macro-region fixed effects. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: RDD analysis on rate differences - additional analyses on *Second rate gap*

Dependent variable: **Second rate gap**						
Panel A: Cities with **positive surcharge**	(1)	(2)	(3)	(4)	(5)	(6)
	Main outcome	Quadratic LP	*h/2*	*2h*		
RD_Estimate	-0.00973	-0.0109	-0.00807	-0.00193	-	-
	(0.00397)**	(0.00513)**	(0.00488)*	(0.00283)		
Outcome variable mean	.015	.015	.015	.015	-	-
Covariates	Yes	Yes	Yes	Yes		
Bandwidth (h)	(2071 10030)	(2071 10030)	(1036 5015)	(4144 20060)		
Panel B: Cities with **flexible rates**					Excluding	Excluding
	Main outcome	Quadratic LP	*h/2*	*2h*	First tercile	First/Second terciles
RD_Estimate	-0.0366	-0.0324	-0.0358	-0.0168	-0.0417	-0.0909
	(0.0130)***	(0.0161)**	(0.0148)**	(0.0101)*	(0.0170)**	(0.0300)***
Outcome variable mean	.095	.095	.095	.095	.133	.195
Covariates	Yes	Yes	Yes	Yes	Yes	Yes
Bandwidth (h)	(2180 8248)	(2180 8248)	(1090 4124)	(4360 16496)	(2180 8248)	(2180 8248)

Notes: Estimation by RDD-LLR using the Calonico et al. (2014) optimal bandwidth selector. Robust standard errors clustered at the municipal level. Set of controls includes mayors and councillors characteristics (age, gender, education), political controls (turnout in last elections and vote share of most voted candidate), economic controls (fees, taxes and special tariffs per capita as well as current and capital expenditures per capita), demographic controls (logarithm of population, share of immigrants and share of population in the age groups 0-14/15-25/26-65/more than 66) as well as year and macro-region fixed effects. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: RDD analysis on rate differences - Young/non-Young mayors

Panel A: Mayors **under-40**	(1)	(2)	(3)	(4)
	First rate gap	**Second rate gap**	Third rate gap	Fourth rate gap
	$\tau_{II} - \tau_{I}$	$\tau_{\mathbf{III}} - \tau_{\mathbf{II}}$	$\tau_{IV} - \tau_{III}$	$\tau_{V} - \tau_{IV}$
RD_Estimate	0.0527	-0.0219	-0.00474	-0.00184
	(0.0302)*	(0.00844)***	(0.00779)	(0.00405)
Outcome variable mean	.123	.017	.013	.008
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(2367 9250)	(1805 7081)	(2006 5696)	(1682 7768)
Panel B: Mayors **over-40**				
RD_Estimate	-0.0158	-0.00771	-0.00143	-0.00217
	(0.0202)	(0.00423)*	(0.00392)	(0.00219)
Outcome variable mean	.130	.014	.011	.008
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(1819 7636)	(2320 7777)	(1274 9733)	(1951 11057)

Notes: Estimation by RDD-LLR using the Calonico et al. (2014) optimal bandwidth selector. The sample under analysis includes all cities with positive municipal surcharge. Robust standard errors clustered at the municipal level. Set of controls includes mayors and councillors characteristics (age, gender, education), political controls (turnout in last elections and vote share of most voted candidate), economic controls (fees, taxes and special tariffs per capita as well as current and capital expenditures per capita), demographic controls (logarithm of population, share of immigrants and share of population in the age groups 0-14/15-25/26-65/more than 66) as well as year and macro-region fixed effects. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: RDD analysis on rate differences - Dependent/Autonomous workers mayors

Panel A: **Dependent** workers	(1)	(2)	(3)	(4)
	First rate gap	**Second rate gap**	Third rate gap	Fourth rate gap
	$\tau_{II} - \tau_{I}$	$\tau_{\mathbf{III}} - \tau_{\mathbf{II}}$	$\tau_{IV} - \tau_{III}$	$\tau_{V} - \tau_{IV}$
RD_Estimate	0.0139	-0.00384	0.000420	0.000183
	(0.0220)	(0.00495)	(0.00392)	(0.00291)
Outcome variable mean	.133	.015	.012	.008
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(1979 8895)	(2451 9312)	(2115 8977)	(1533 8189)
Panel B: **Autonomous** workers				
RD_Estimate	-0.0259	-0.0136	-0.00350	-0.00263
	(0.0263)	(0.00551)**	(0.00460)	(0.00309)
Outcome variable mean	.123	.014	.010	.007
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(1862 8794)	(2177 6149)	(1014 9431)	(1474 15633)

Notes: Estimation by RDD-LLR using the Calonico et al. (2014) optimal bandwidth selector. The sample under analysis includes all cities with positive municipal surcharge. Robust standard errors clustered at the municipal level. Set of controls includes mayors and councillors characteristics (age, gender, education), political controls (turnout in last elections and vote share of most voted candidate), economic controls (fees, taxes and special tariffs per capita as well as current and capital expenditures per capita), demographic controls (logarithm of population, share of immigrants and share of population in the age groups 0-14/15-25/26-65/more than 66) as well as year and macro-region fixed effects. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: RDD analysis on rate differences - mayors with High/Low education

Panel A: Low education	(1) First rate gap $\tau_{II} - \tau_I$	(2) **Second rate gap** $\tau_{\mathbf{III}} - \tau_{\mathbf{II}}$	(3) Third rate gap $\tau_{IV} - \tau_{III}$	(4) Fourth rate gap $\tau_V - \tau_{IV}$
RD_Estimate	-0.0338	0.000776	-0.00587	-0.00754
	(0.0567)	(0.00898)	(0.00869)	(0.00606)
Outcome variable mean	.097	.012	.010	.007
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(2216 5587)	(1240 5508)	(1392 10015)	(1335 7684)
Panel B: High education				
RD_Estimate	-0.00330	-0.0109	-0.000259	-0.00147
	(0.0183)	(0.00425)**	(0.00380)	(0.00203)
Outcome variable mean	.132	.015	.012	.008
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(1813 8500)	(1958 9871)	(1321 6520)	(1922 10179)

Notes: Estimation by RDD-LLR using the Calonico et al. (2014) optimal bandwidth selector. The sample under analysis includes all cities with positive municipal surcharge. Robust standard errors clustered at the municipal level. Set of controls includes mayors and councillors characteristics (age, gender, education), political controls (turnout in last elections and vote share of most voted candidate), economic controls (fees, taxes and special tariffs per capita as well as current and capital expenditures per capita), demographic controls (logarithm of population, share of immigrants and share of population in the age groups 0-14/15-25/26-65/more than 66) as well as year and macro-region fixed effects. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: RDD analysis on rate differences - Placebo: excluding 2012

Panel A: cities with positive surcharge	(1) First rate gap $\tau_{II} - \tau_I$	(2) **Second rate gap** $\tau_{\mathbf{III}} - \tau_{\mathbf{II}}$	(3) Third rate gap $\tau_{IV} - \tau_{III}$	(4) Fourth rate gap $\tau_V - \tau_{IV}$
RD_Estimate	-0.00226	-0.0118	-0.00373	-0.00271
	(0.0191)	(0.00453)***	(0.00357)	(0.00239)
Outcome variable mean	.137	.016	.012	.008
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(1883 7765)	(2139 7274)	(1708 8074)	(1576 10146)
Panel B: cities with flexible rates				
RD_Estimate	-0.0258	-0.0410	0.00519	-0.00670
	(0.0336)	(0.0136)***	(0.0111)	(0.00631)
Outcome variable mean	.288	.095	.079	.055
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(1575 10945)	(2196 8761)	(1128 12492)	(1111 16489)

Notes: Estimation by RDD-LLR using the Calonico et al. (2014) optimal bandwidth selector. Robust standard errors clustered at the municipal level. Set of controls includes mayors and councillors characteristics (age, gender, education), political controls (turnout in last elections and vote share of most voted candidate), economic controls (fees, taxes and special tariffs per capita as well as current and capital expenditures per capita), demographic controls (logarithm of population, share of immigrants and share of population in the age groups 0-14/15-25/26-65/more than 66) as well as year and macro-region fixed effects. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 9: RDD analysis on rate differences - Continuity of factors across brackets

Panel A: Gross income declared	(1)	(2)	(3)	(4)
	First rate gap	**Second rate gap**	Third rate gap	Fourth rate gap
	$\tau_{II} - \tau_{I}$	$\tau_{\mathbf{III}} - \tau_{\mathbf{II}}$	$\tau_{IV} - \tau_{III}$	$\tau_{V} - \tau_{IV}$
RD_Estimate	127189.7	-59835.3	-85436.6	-111667.6
	(505197.7)	(406396.0)	(564243.5)	(69743.8)
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(1691 4676)	(2300 4164)	(1950 4804)	(1647 4519)
Observations				
Panel B: Number of tax-payers				
RD_Estimate	13.25	-3.541	-2.136	-0.876
	(32.88)	(17.86)	(17.94)	(1.106)
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(1737 5125)	(1844 4677)	(1957 4797)	(2022 5103)
Observations				
Panel C: Number of tax-payers per-capita				
RD_Estimate	0.00453	0.000143	-0.00136	-0.000184
	(0.00574)	(0.00324)	(0.00349)	(0.000201)
Covariates	Yes	Yes	Yes	Yes
Bandwidth (h)	(2005 6948)	(1994 7669)	(1718 9809)	(1893 10451)
Observations				

Notes: Available data contains information on the following wage brackets (expressed in Euro): 0-15,000, 15,000-26,000, 26,000-55,000, 55,000-75,000 and more than 75,000. Robust standard errors clustered at the municipal level. Set of controls includes mayors and councillors characteristics (age, gender, education), political controls (turnout in last elections and vote share of most voted candidate), economic controls (fees, taxes and special tariffs per capita as well as current and capital expenditures per capita) as well as year and macro-region fixed effects. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure 1: Rate differences around 5,000 inhabitants threshold.

Notes: The plot focuses on Italian municipalities with flexible surcharge rate for the period 2012-2015. The picture includes lines of best fit with 95% confidence intervals, performed separately on either side of 5,000 inhabitants threshold. The complete set of controls is always included as well as year and macro-region fixed effects.

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