Free to Spend? The Effect of Fiscal Autonomy on Local Governments*

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Abstract

We consider how decentralization of fiscal autonomy to local governments affects their budgetary decisions. We study an Italian reform which expanded municipal discretion and responsibility over property taxation, using novel data on what the national government *would* have done in a more centralized system. Municipalities on average picked higher tax rates than the national government would have. Municipalities respond to additional responsibility by raising more revenue and spending more on public services. Local conditions shape these municipal responses: those with greater political competition or worse economic conditions spend more on public services, but less on administration and public official remuneration.

JEL codes: H71, H72, H77

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1 Introduction

In recent decades, there has been a growing trend in many countries to devolve revenue and expenditure responsibilities from higher levels of government to state and local authorities. Among OECD countries, the share of revenue collected through direct taxation by state or local authorities has been increasing steadily (OECD, 2019).[1] Proponents of decentralization argue that giving fiscal autonomy to lower levels of government can improve efficiency, whether it be through better information or via political incentives of local authorities (Tiebout, 1956; Musgrave, 1959; Oates, 1972; Besley and Coate, 2003; Oates, 2005; Persson and Tabellini, 2002; Bardhan and Mookherjee, 2006; Enikolopov and Zhuravskaya, 2007; Boffa et al., 2016).[2] The underlying premise of these arguments for decentralization is that if local governments had more autonomy, they would behave *differently* than in a more centralized system, either in terms of raising revenue or allocating expenditure. Thus, the question of whether decentralization to local governments changes their budgetary decisions, relative to a more centralized system, is an important one to understand.

This paper studies two common ways decentralization occurs: first, by giving local governments more *discretion* over how much tax revenue to collect, and second, by giving them more *responsibility* over the share of their budget they must raise through taxes rather than relying on transfers from high levels of government. Using a reform which decentralized property taxation in Italy, we construct a new measure of the extent to which local municipalities exercise discretion under a decentralized tax system. In particular, we use novel data that allows us to compare municipalities' chosen tax rates to the ones that national government *would* have chosen. We then consider the effect of the additional revenue-raising responsibility from the reform on local budgetary decisions. Motivated by both the "first generation" and "second generation" theories of fiscal federalism which posit that the effects of decentralization will depend on local characteristics, preferences, and political incentives, we further explore how the responses to discretion and responsibility interact with local characteristics and political competition.

We consider a decentralization reform that both gave municipalities more discretion over raising revenue through the property tax, but also left them responsible for raising a larger

[1] In Italy for example, the share of total government revenue collected as taxes at the subnational level increased from 5.8% in 1995 to 11.6% in 2020.

[2] The "first generation theory" of fiscal federalism posits that local officials are benevolent social planners. Decentralization can improve the efficiency of public goods delivery because local officials have better information about local preferences and conditions, and citizens can sort across localities according to their preferences (Oates, 1972). The "second generation theory" of fiscal federalism extends the first generation by pointing out that local public officials may diverge from maximizing social welfare because they also face fiscal or political incentives (Besley and Coate, 2003).

share of their own budgets through own taxation rather than transfers.. In 2012, the Italian national government expanded municipal tax revenue through the introduction of a new property tax, the *Imposta Municipale Propria* (IMU), and paired it with a simultaneous reduction in national transfers. The reform had three components.: First, it replaced an older property tax with the IMU and essentially doubled the valuation of the tax base with the IMU. Second, it gave municipalities more discretion over property tax rates by expanding the range of tax rates a municipality could choose from. Our main analysis focuses on the tax rate for "base buildings," or residential buildings which are *not* the main residence.[3] For these buildings, the reform expanded the range of possible tax rates from [0.4 - 0.7%] to [0.46 - 1.06%].[4] Third, the reform reduced national transfers to municipalities, where the reduction was equal to the *expected* additional property tax revenue, calculated using a nationally suggested tax rate.

We collect novel data on the expected additional property tax revenue (as calculated using the nationally suggested tax rate), the *actual* property tax rates municipalities chose, and municipal balance sheets from 2008 to 2014. We use this data to document the extent to which municipalities deviated from the nationally suggested tax rate – which we take as our measure of the extent to which municipalities exercised their new discretion.

Using this data, we first characterize the direction in which municipalities deviated relative to the national suggestion in terms of picking tax rates. In response to the increase in discretion stemming from the reform, 62 percent of municipalities chose a property tax rate different from the one suggested by the national government. On average, municipalities raised more than the national government would have, deviating 2 percent away from the nationally suggested rate. The size and direction of the response is also influenced by various municipal characteristics. In line with the hypothesis of the "first generation theory" of fiscal federalism (Musgrave 1959; Oates 1972), municipalities with different baseline characteristics use their new discretion to pick different tax rates – we find that municipalities with a larger share of poor or unemployed families pick tax rates *above* the suggested rate for base buildings. The tax on base buildings are less likely to be paid by poorer households. Therefore, municipalities with worse economic conditions choose to increase taxes on properties that poorer families are *less* likely to own. In line with the "second generation theory," we also show that the degree of local political competition is correlated with the direction in which municipalities deviate. Municipalities where the mayor had a smaller margin of victory in the last election are more likely to pick a higher tax rate for base buildings.

[3]We focus on base buildings rather than the main residence because the regulations on property tax on the main residence were modified several times in our period of analysis.

[4]D.L. 201/2011.

Next, we consider the effect of additional revenue-raising responsibility on municipal revenue and expenditure using an instrumented difference-in-difference empirical strategy. In particular, we are interested in the effect of an increase in a municipality's *own revenue share*, or the share of the budget a municipality raises through own taxation rather than transfers. We instrument for changes in the own revenue share using the additional property tax revenue expected from the IMU reform (as calculated by the national government using the suggested tax rate), which is equal to the reduction in transfers from the national government.

In response to a one percent increase in own revenue share, municipalities increase total revenue by 0.4 percent and total expenditure by 0.3 percent. In particular, expenditure for services (0.5 percent) and administration increase (0.4 percent), while city council's remuneration does not change. We do not observe any changes in the provision of public goods like education, waste management, and public lighting in the short-run, within 2 years of the reform.

To explore the mechanisms underlying this response, we look at two sources of heterogeneity across municipalities: the degree of political competition and local economic conditions. First, we find that municipalities with smaller margins of victory in the last mayoral election respond to additional responsibility by spending relatively more on services and relatively less on administration and remuneration of public officials. This finding is in line with the "second generation theory" of fiscal federalism, that local officials' responses to additional autonomy are shaped by political incentives (Besley and Coate, 2003). Second, we find that the response is also influenced by local economic conditions. Municipalities with higher poverty and unemployment rates shift their spending toward services and away from administration and remuneration. This heterogeneity by local conditions is in line with the "first generation" theory of fiscal federalism, which argues that additional autonomy allows local governments to better respond to local economic conditions.

A key assumption underlying both sets of our analyses is the exogenous timing of the decentralization reform – that municipalities did not change their behavior in anticipation of it. As we discuss in Section 2, the timing of this reform was unexpectedly moved forward – the national government had originally planned to introduce changes to the property tax in 2014, then the national sovereign debt crisis forced the national government to move it forward to 2012. For the analysis on responsibility, we also assume that the size of the transfer cut is plausibly exogenous to the municipality. This is supported by the fact that, from a municipality's perspective, the size of the transfer cut was not manipulable in the run-up to the reform – it was calculated by the national government using the pre-reform tax base and set to be equal to the expected additional revenue from IMU. We provide further

evidence in Section 4 that municipalities which saw differential increases in responsibility were not on divergent trends prior to the reform.

This paper contributes to several strands of literature on local public finance and fiscal federalism. First, we provide a new measure to explore the notion that decentralization improves efficiency by allowing local authorities to tax and spend in ways that better match local needs (Tiebout, 1956; Oates, 1972, 2005).[5] This argument rests on the assumption that, given additional discretion, local governments would act *differently* than the national government would. We develop a novel measure of how local governments respond to additional discretion – we acquire data on both the nationally suggested tax rate and municipalities' actual chosen tax rates. Using this measure, we provide empirical evidence in support of the "first generation theory" of fiscal federalism: the majority of municipalities deviate from the national suggestion when given the chance, and do so in a way that responds to local characteristics and conditions. Municipal responses in expenditure also respond to local conditions. We also find that another important factor is the degree of local political competition, which supports the "second generation theory"(Besley and Coate, 2003).

Second, this paper contributes to a growing empirical literature on the causal effects of greater autonomy for local governments (Shleifer and Vishny, 1993; Seabright, 1996; Tommasi and Weinschelbaum, 2007; Albornoz and Cabrales, 2013; Brollo et al., 2013; Caselli and Michaels, 2013; Martinez, 2016; Gadenne, 2017; Bordignon et al., 2020). In terms of context, Bianchi et al. (2019) is closely related to our paper in that it also studies Italian municipalities and decentralization, albeit in response to a separate reform in the 1990s. They focus on the long-run effects of fiscal autonomy, and find that it improves the provision of public goods (i.e. nursery schools) with consequences for the female labour market. In contrast, we focus primarily on the short-run effects, which allows us to focus on narrowly-defined revenue and expenditure categories. In terms of revenue, municipalities with greater responsibility raise more taxes but do not take on more debt or raise more non-tax revenue. Municipalities with greater responsibility increase expenditure on services, in particular for social protection, territory and environment, instruction, and police, but decrease spending on administration and remuneration. Taken together with the long-term effects found in Bianchi et al. (2019), this suggests that while the effects of fiscal autonomy on budgetary behavior is immediate, the real effects on public goods provision manifest in the long run.

[5]Recent empirical work in support of the "first generation" hypothesis include: Strumpf and Oberholzer-Gee (2002), who test whether more heterogeneous preferences lead to greater local autonomy in the case of alcohol control policies in the U.S.; Faguet (2004) who shows that local public investments respond more to local needs after a decentralization reform in Bolivia; and Barankay and Lockwood (2007), who show how decentralization in the education sector improved the educational attainment of students in Switzerland.

The paper is organized as follows: Section 2 describes the policy setting and details of the reform. Sections 3 and 4 describe the data and identification strategy we use to exploit the reform and answer the research questions. Section 5 lays out our results and robustness checks. Finally, Section 6 describes the implications of our findings and concludes.

2 Institutional Setting

Italy is divided into 20 regions, 110 provinces, and approximately 8,000 municipalities.[6] Historically, the national government held most of the authority on expenditure and revenue decisions. In the last few decades, however, it has been devolving expenditure and revenue responsibilities from higher levels of government to lower ones.[7] Starting in the early 1990s, the Italian national government laid out an administrative and fiscal decentralization plan.[8] The decentralization process continued in the early 2000s with a constitutional reform that overhauled the responsibilities of the national and regional governments in several public sectors.

The plan was for the decentralization process to end in 2014 with the introduction of a new property tax raised by municipalities (*Imposta Municipale Propria*, or IMU), coupled with an equivalent reduction of the national transfers. The goal of the reform was to increase each municipality's revenue-raising ability without changing their overall budget levels. However in 2011, in response to Italy's economic conditions following the recession (see, for example, the evolution of interest rates on sovereign debts in Figure A1), the national government implemented an unanticipated fiscal adjustment program to national expenditure and debt. The program substantially reduced transfers from the national government to local public governments. One result of this program was that the introduction of the IMU was unexpectedly moved forward to 2012.

The IMU reform substantially increased the amount of property tax revenue municipalities were in charge of collecting, while simultaneously reducing the amount of national transfers made to them.[9] It essentially doubled the valuation of the tax base, added the main

[6]Some Italian regions have more autonomy compared to the others (i.e. Sicily, Valle D'Aosta, Trentino Alto Adige, Friuli Venezia Giulia, and Sardinia). We exclude them from the analysis since the IMU reform was implemented differently in these regions. Additionally, because these regions are semi-autonomous, they do not share property tax data with the national government.

[7]For example, provinces were also subject to a large reform in 2014. Provincial leadership is no longer elected, and some of their responsibilities were given to municipal and regional governments.

[8]The first laws on administrative decentralization were issued in 1991-1992: D.L. 299/1991 and D.Lgs. 504/1992.

[9]The overall property tax revenue increased from 9.8 billions of Euros to 23.8 billion Euros.

residence to the tax base, and introduced new tax rates by building type (Ambrosanio et al. (2014)). Each building type was assigned a "suggested" national tax rate, but municipalities could choose to set their own tax rate within a given range. For example, the suggested rate for base buildings (i.e. all residential buildings which are not the main residence) was 0.76%, but municipalities could choose to set the tax rate between 0.46% and 1.06%. For main residences, the tax rate was 0.4% (+/- 0.2), the tax rate for agricultural land was 0.2 (+/- 0.1), and the rate for buildings constructed for sale was 0.72 (+/- 0.34).[10] In subsequent years, details of how the IMU is calculated have changed, but in this paper we focus solely on the 2012 reform.[11]

Using the suggested tax rate for each building type, the national government calculated a municipality's expected additional property tax revenue as a result of the IMU reform. It then cut transfers to each municipality by this amount. In doing so, the national government intended for the 2012 reform to be budget-neutral. Figure A2 shows the average expected impact of the IMU reform on the municipalities' revenue for each Italian province.

The details of the reform are essential to our empirical strategy. Transfers from the national government were reduced by an amount equal to the additional property tax revenue the national government *expected* municipalities to collect after IMU was introduced. The national government calculated the expected change in property tax revenue by picking a single tax rate for each building type, multiplying it by the value of all buildings of that type in a municipality, and then summing across all building types to arrive at a final expected property tax revenue amount (and transfer cut) for the municipality. The size of the transfer cut was determined using the nationally suggested tax rates for each type of building, independent of any deductions or rate changes picked by the municipality.

We argue that the magnitude of the transfer cut was plausibly exogenous to municipalities in that they could not influence its size or its timing. Municipalities had no control over the tax rate used for the calculation – the calculation was done with the same property tax rate by building type for all municipalities. They also had little control over the tax base in the

[10]We focus only on residence buildings because of data availability. There are two different tax rates for residence buildings: the one on the main residence and the one for the other residence buildings. In the main results, we study the rate for base (residence) buildings because the taxation on main residence changed multiple times over our period of analysis. Prior to 2011, the main residence was initially taxed only for luxury buildings, it was extended to all main residences from 2012 to 2013, then after no luxury buildings were exempted again. Finally, the definition of luxury buildings changed between the pre-2011 and the post-2013 taxation. Therefore, we decided to run our main analysis focusing on the tax rate for base buildings, reporting the results for main residence in the appendix.

[11]In particular, there have been two main changes: first, the main residence has been excluded from the property tax base since 2013, but other types of buildings are included. Second, in 2013 the national state introduced the Solidarity Fund (*Fondo di solidarieta' comunale*) to distribute the resources from municipality would have increased their revenue with the introduction of IMU to those who reduced it.

time between announcement and implementation of the reform. Given that the reform was unexpectedly moved forward to 2012 in December 2011, we argue that municipalities did not have time to change the number of buildings included in the calculation.[12] The register of buildings in each municipality is collected by a national agency[13] and the tax value of each type of building was set nationally in 1990 and it never changed since then.[14]

3 Data

The data we use in our analyses are drawn from several Italian government sources. For data on municipal revenue, expenditure, and public goods provision we scrape municipal balance sheet data from the *Open Bilanci* website,[15] which has a variety of municipal-level information from 2007 to 2014. We scrape total revenue, municipal taxes (property tax, personal income tax (IRPEF), taxes on services, and other taxes), revenues from fees, transfers from national/regional governments and other sources, non-tax revenues, loans, sales and capital transfers, and revenue from deposits paid by third parties. We use this to construct three sources of revenue for a municipality: own revenue, transfers, and other sources.[16] We also collected information on the total municipal expenditure and on the expenditure by sectors of activity. We have information on the level of expenditure on the following sectors of municipal activity: administration, social, territory and environmental services, instruction, roads and transport, culture, sport, police and justice. We categorize these expenditure into three groups: service expenditure (including all the expenditure but administration), the remuneration of the city council (which are part of the expenditure in administration), and the other administration expenditure. Finally, we have information on the provision of public goods for some of these sectors; in particular, the number of nursery schools, number of local police officers, amount of public lighting, and amount of waste collected.

[12] This is reflected in the lack of change in the number of buildings in Figure A3 among municipalities that were more- or less-affected by the reform.

[13] The building and land registries are kept by a national agency (*Agenzia del Territorio*), and building owners report directly to this national agency (Casaburi and Troiano, 2016). Casaburi and Troiano (2016) consider a national anti-tax evasion policy led by *Agenzia de Territorio* in 2007, known as the "Ghost Buildings" program, which detected and added more than 2 million parcels to the national land registry.

[14] D.Lgs. 347/1990.

[15] https://openbilanci.it/.

[16] Our definitions of these revenue sources deviate from that of the national Department of Finance and Open Bilanci. We assign revenue from shared funds such as the experimental rebalancing fund and later the municipal solidarity fund (*Fondo di solidarieta' comunale*) as transfers, while the official definition assigns them as tax revenue. We do this to highlight what we believe to be the relevant difference between transfers and own revenue for a municipality. From a municipality's point of view, transfers from this fund are transfers from a higher level of government relative to the municipality. We have confirmed the validity of defining revenue in this way with subject matter experts at the Bank of Italy.

We collect data on the IMU reform and the other transfers cuts from the *Istituto per la Finanza e l'Economia Locale* (*IFEL*), which collects information on the size of transfer cuts/expected change in property tax revenue for each Italian municipality. *IFEL* also publishes the municipal property rate for buildings up to 2013. We collect information on the tax rate for *"base buildings"* (i.e. all the residential buildings except for the main residence) and the main residence in each municipality. Finally, we collect information on sociodemographic variables for each municipality from the Italian National Bureau of Statistics (*ISTAT*).

Table 1 shows the descriptive statistics prior to 2011 for the municipalities in the study. We report information on the average yearly value of expenditure and revenue, as well as the shares of expenditure and revenue by invoice account. The most relevant municipal expenditure categories are for public service provision (57%), administration (28%), and debt repayment (7%). Before the IMU reform, property tax revenue was on average the largest source of tax revenue for the municipalities (13%), while transfers from the national government accounted for approximately 19% of municipalities' budget. The average municipality's own revenue share, or the share of the budget it raises through own taxation, is 23%. We show the average provision of public goods in Italian municipalities, their average size, and the share of municipalities subject to fiscal rules. Finally, we show that the IMU reform was expected to make a substantial impact on the average municipality's budget, equalling about 3% of total revenue in 2011.

4 Empirical Strategies

4.1 Effect of Discretion

Our first set of analyses seeks to measure and understand how municipalities used their newfound discretion over selecting property tax rates. After the IMU reform in 2012, the suggested rate for base buildings was 0.76%, but municipalities could choose to set the tax rate between 0.46% and 1.06%. Prior to the reform, municipalities could only choose between 0.4% and 0.7% – so, municipalities' discretion over tax rates increased as a result of the reform.

To measure municipalities' use of this discretion, we use novel data on both the nationally *suggested* tax rate as well as the *actual* tax rates municipalities chose. We take these to represent what the tax rates would be in a relatively more centralized or decentralized property tax regime, respectively. We construct a measure of the percent deviation of a municipality's chosen tax rate from the national suggestion. Changes in this value post-

reform can be interpreted as measures of the extent to which municipalities exercised their newfound discretion under a more decentralized property tax scheme.

Prior to the reform, there was no official nationally suggested tax rate, and municipalities still had some degree of discretion – they could pick between 0.4 and 0.7%. In the main estimates we use the midpoint between 0.4 and 0.7 as the pre-reform "nationally suggested" tax rate, $SuggestedRate_t$, as the post-reform nationally suggested tax rate was equal to the midpoint between the expanded allowed range of tax rates, [0.46%-1.06%].[17] The percent deviation of municipality m in year t is defined as:

$$PercentDeviation_{mt} = \frac{ActualRate_{m,t} - SuggestedRate_t}{SuggestedRate_t}$$

If the municipality chooses the national government's suggested tax rate, then the relative change in property tax would be equal to zero. It is positive if municipalities set their tax rate higher than the national one, and negative if they set it lower. To study how this measure changed as a result of the reform, we regress $PercentDeviation_{mt}$ on a post-reform dummy (i.e., post-2012):

$$PercentDeviation_{mt} = \alpha_1 PostIMU_t + \alpha_2 \mathbf{X}_{mt} + \eta_t + \alpha_m + \varepsilon_{mt} \quad (1)$$

where $PostIMU_t$ is an indicator for post-2012, α_m is a municipality fixed effect, X_{mt} is a vector of controls including the log of municipal population in a given year, and the log of other changes in municipality transfers in a given year. α_1 captures how the percent deviation in property tax rate changed after the IMU reform gave municipalities more discretion. We then interact the $PostIMU_t$ indicator with municipal characteristics like political competition and pre-reform economic conditions to explore the types of municipalities that tend to raise taxes above or below what is nationally suggested.

4.2 Effect of Responsibility

In the second set of analyses, we use an instrumented difference-in-difference specification to study how municipalities responded to the increased responsibility to raise a larger share of their budget from taxation. We use the expected impact of the reform on municipal revenue as an instrument for the share of the budget the municipality is responsible for raising, or "own revenue share." Specifically, we define the $OwnRevShare_{mt}$ of municipality m in year

[17] We also show that the results are robust to assuming the suggested tax rate to be the average of the actual tax rates before the IMU reform (Table 11).

t as:

$$OwnRevShare_{mt} \equiv \frac{OwnRevenue_{mt}}{TotalRevenue_{mt}} = \frac{PropertyTax_{mt} + OtherTax_{mt}}{TotalRevenue_{mt}}$$

The value in the denominator, total municipal revenue, is the sum of tax revenue, transfers, and other revenue sources. The value in the numerator, own tax revenue, is the sum of property tax, the tax on personal income (i.e. *IRPEF*), trash, taxes from public occupation, and other minor taxes.[18]

We are interested in recovering the causal effect of revenue-raising responsibility on local revenue and expenditure. But one challenge is that municipalities can adjust $OwnRevShare_{mt}$ in response to the IMU reform for reasons unrelated to the reform – thus, $OwnRevShare_{mt}$ is likely to be correlated with time-varying unobserved variables that could also affect municipal revenue and expenditure. To isolate changes in own revenue share that are exogenous to the municipality, we calculate the impact of the IMU reform as a share of a municipality's *pre-reform* revenue, and use this as an instrument for $OwnRevShare_{mt}$. In particular, we instrument for $OwnRevShare_{mt}$ using the expected additional revenue from the IMU reform as a share of total revenue:

$$IMURevShare_m = \frac{IMURev_m}{TotalRevenue_{m,2011}} \tag{2}$$

The numerator of $IMURevShare_m$ is the additional property tax revenue the national government *expected* municipalities to raise from the IMU reform (calculated using the nationally suggested rates), which is equal to the size of the transfer cut municipalities faced. Municipalities cannot adjust the size of the transfer cut, as it is based on the national government's own calculation. And because larger municipalities mechanically have larger property tax bases, we scale this measure by dividing it by a municipality's total pre-reform revenue. We then incorporate the instrument into a difference-in-difference specification by interacting it with a post-reform indicator:

$$\begin{aligned} &\textit{First Stage}: \quad OwnR\widehat{evS}hare_{mt} = \gamma_1 IMURevShare_m \times PostIMU_t + \mathbf{X}'_{mt}\gamma_2 + \eta_t + \alpha_m + \nu_{mt} \\ &\textit{Second Stage}: \quad Y_{mt} = \beta_1 \widehat{OwnRevShare}_{mt} + \mathbf{X}_{mt}\beta_2 + \eta_t + \alpha_m + \varepsilon'_{mt} \end{aligned} \tag{3}$$

where $PostIMU_t$ is an indicator for post-2012 (i.e., post-reform year), η_t is a year fixed effect, α_m is a municipality fixed effect, X_{mt} is a vector of controls including the log of

[18] Property taxes contribute the largest proportion of own revenue (54% on average).

municipal population in a given year, and the log of other changes in municipality transfers in a given year.[19] β_1 represents the effect of a 1 percentage point increase in own revenue share on municipal outcome Y_{mt}.

Our analyses leverage two dimensions of the IMU reform: first, that the timing of the reform was unexpected, and second, that the level of the additional revenue the national government expected the municipality to raise (and thus, the size of the cut in transfers) could not be manipulated by the municipality. The plan to expand the property tax was originally planned for 2014, but in December 2011, the implementation was unexpectedly moved forward to 2012.[20] Therefore, our results should not be affected by any anticipatory behavior by municipalities. The magnitude of the impact of the reform to each municipality is plausibly exogenous because it is determined by the national government's calculation of the expected additional property tax revenue. This calculation is based on two elements which municipalities could not manipulate in 2012: the national government's suggested tax rate, and the municipality's pre-reform tax base. Municipalities had no say in deciding either of the inputs to the national government's calculation of how much to cut transfers by.

Another key assumption in the difference-in-difference analysis is the parallel trends assumption – that absent the 2012 IMU reform, outcomes of municipalities affected more or less by the reform would have trended similarly. One violation of this assumption, for example, might be that the economic downturn following the 2008 recession differentially affected municipalities in ways that were correlated with the impact of the IMU reform. We also show that the reform is uncorrelated with pre-reform economic measures like the unemployment rate and the share of poor families (Figures A4 and A5; Table A1). Additionally, we check for evidence of parallel trends before the IMU reform. To check for evidence to support making the parallel trends assumption, in Figure 1 we plot the property tax collected (in levels) for municipalities, split by whether they had an above-median or below-median effect of the IMU (as measured by the expected IMU as a share of 2011 revenue). In Figure 2 we plot the evolution of own revenue share on municipalities for above- and below-median municipalities. Both figures suggest that above- and below-median municipalities were on

[19] In Figure 4, we show the correlation between the other transfers implemented by the national government or any other public body in any year and the size of the IMU transfer cut. They are uncorrelated. This suggests that the national government did not use other reforms to strategically compensate the municipalities affected by the IMU reform.

[20] The *D.L.* 201/2011 explicitly states: "The introduction of the IMU is anticipated to 2012 [...]." Furthermore, Figure A1 shows the evolution of interest rates on the Italian public debt compared to that of other European countries. The Italian interest rate increased substantially from July 2011 to the end of 2011. Considering that Italy had one of the largest debt shares (as a percent of GDP) in the world, the higher interest rate forced the Italian government to resign, and the new government implemented many policies to reduce the level of national debt.

parallel trends prior to the reform, but municipalities that were more affected by the reform increased the amount of property tax collected and their own revenue share once the reform was enacted in 2012.

5 Results

5.1 Effect of Discretion

The first set of analyses explores whether municipalities exploit the increase in tax rate-setting discretion to deviate from what the national government would have done. Figure 3 shows the distribution of the percent deviation in the actual 2012 property tax rate from the national government's suggestion. If the municipality chooses to stick to the tax rate suggested by the national government, then the percent deviation in property tax would be equal to zero. Municipalities could deviate by up to 40 percent of the national government's tax rate.[21] 62 percent deviate from the nationally suggested property tax rate, with 60% picking a higher tax rate relative to what was suggested, and only two percent picking a lower tax rate.

Given that municipalities already had some discretion in picking tax rates pre-reform, in Table 2 we estimate Equation 1 to explore whether the increase in the range of possible tax rates led to an *increase* in the magnitude of the deviation away from the nationally suggested tax rate. Column 1 shows the average impact of the IMU reform on the deviation in property tax rate for the base buildings – the average municipality deviates by two percent above the suggested rate.

Next, we interact the $PostIMU_t$ indicator with pre-reform municipal characteristics to explore what factors are correlated with the direction and magnitude of deviations. Columns 2 and 3 of Table 2 consider whether municipalities respond differentially in response to local economic conditions. Municipalities with higher unemployment rates and higher shares of families living in poverty tend to pick higher base building tax rates. The base building tax rate only applies to residences *outside* of the main residence. Therefore, this result suggests that municipalities with worse local economic conditions used their additional discretion to charge higher taxes to relatively richer households, who are more likely to own properties beyond their main residence. Columns 4-6 show that municipalities with lower baseline municipal tax revenue, that are subject to a fiscal rule, and those for whom the IMU reform

[21] The national government's suggested tax rate is equal to 0.76 percent, but municipalities could modify it from 0.46 up to a maximum of 1.06 percent.

is expected to have a larger budgetary impact tend to deviate and set their tax rates higher.[22] Table A2 finds similar heterogeneity using other measures of local economic conditions and baseline budgetary conditions.[23]

Next, Table A4 shows how the political environment affects the response to discretion. We proxy for the level of political competition in a municipality by the margin of victory that the current mayor had from the second candidate at the last election before the reform, $MarginVictory_m$. We interpret a smaller margin of victory for the current mayor to be evidence of greater political competition. We find that municipalities with more political competition are more likely to pick a higher tax rate. One reason for this could be that, regardless of the chosen tax rate, citizens would have had to pay more property tax because the reform effectively doubled the tax base in order to replace transfers (Ambrosanio et al. 2014). Politicians facing more political competition may have sought to increase the tax rate above what was suggested in order to fund expenditure to expand services, demonstrating to citizens that the additional taxes were being spent on improving public goods.

5.2 Effect of Responsibility

We next turn to the question of how municipalities responded to the additional revenue-raising responsibility due to the reform using an instrumented difference-in-difference approach. In Table 3 and Figure 2, we first demonstrate that the IMU reform increases $OwnRevShare_{mt}$ – the "first stage." A one percentage point increase in $IMURevShare_m$ is associated with a 0.76 percentage point increase in $OwnRevShare_{mt}$, relative to a pre-reform average of 23 percent. The result is robust to the inclusion of controls for population, measures of other transfers, and an indicator for whether the municipality is subject to the *Domestic Stability Pact*, a set of fiscal discipline rules imposed by the national government that constrained municipalities' debt accumulation.; for the main results we include controls for all three.

We then incorporate the instrumented $OwnRevShare_{mt}$ in a difference-in-difference specification to study the effect of increased municipal responsibility on municipal revenue, expenditure, and public good provision. Table 4 shows the results of the specification in Equation 3. Panel A shows that a 1 percentage point increase in own revenue share increases total revenue by 0.4 percent and non-IMU taxes by 1.1 percent. There is no effect on the level of debt

[22]The budgetary impact of the IMU reform is computed as a share of the expected value of the IMU reform on 2011 total revenue.

[23]Table A3 shows the results focusing only on municipalities which deviated from the national government choice.

or on other types of revenue, such as dividends from companies owned by the municipality or revenue from renting public spaces. On the expenditure side (*Panel B*), municipalities use the additional resources to increase total expenditure, expenditure on services and on administration, but do not increase expenditure on the remuneration of the elected officials. Table A5 splits the expenditure on services by category, showing that municipalities increase expenditure on social protection, territory and environment, instruction, and policing.

In *Panel C* we consider public goods provision. Despite the change in the service expenditure, we do not find evidence that an increase in own revenue share led to a detectable increase in the provision of public good within two years of the reform. A possible explanation of the discrepancy between expenditure on services and the provision of public goods is that our panel only allows us to observe public goods in a short time frame after the reform, in contrast to other work that has found increases in public goods over a longer period after decentralization (Gadenne, 2017; Bianchi et al., 2019).

In Table 5, we explore how the results on responsibility vary by local public officials' electoral incentives. Table 5 interacts $MarginVictory_m$ with instrumented own revenue share.[24] For the same change in instrumented own revenue share, municipalities with more political competition (i.e., small $MarginVictory_m$) have larger increases in revenue and larger decreases in debt. These municipalities spend relatively more on services, but less on administration and remuneration of city council members. We detect that within two years municipalities with more political competition are more likely to have a nursery school and collect more waste. Thus as political competition weakens, municipalities switch from using the additional revenue they raise to fund public services to using it for administration or remuneration.

We next explore heterogeneity by baseline local economic conditions. Table 6 shows that municipalities with worse economic conditions, as measured by high unemployment rates and high poverty rates, shift revenue collection away from non-IMU taxes and non-tax revenue, and toward tax revenue and debt. As a result, total revenue increases more in these municipalities (Table 7). This additional revenue is in turn spent on services, not administration or remuneration. Furthermore, these municipalities see increases in nursery schools within two years of the reform (Table 8).[25] As the base building tax was levied on non-main residences, it disproportionately affected richer households. These results show that munic-

[24]Table A6 shows similar results for a separate measure of political competition – namely if a mayor is in their second mandate (term) in 2011, meaning they cannot go up for reelection again. We interpret a mayor being in their second mandate during the IMU reform as facing lower political incentives, and find that mayors in their second mandate are less likely to increase total and service expenditure.

[25]Tables A9, A10, and A11 show similar effects for alternative measures of local economic conditions like the female unemployment rate and the share of families living in crowded conditions.

ipalities with worse economic conditions were willing to increase taxes on these households to fund expenditure for public goods, which lower-income households likely benefited more from.

5.3 Robustness

We next conduct robustness checks of the main results. First, we consider whether *other* transfers changed as a result of the IMU reform in a way that is correlated with the effect of the IMU reform. If the national government (unofficially) coupled the reduction in transfers from the IMU reform with other policies, then our empirical strategy does not isolate the causal effect of changes due to the IMU reform. We explore this in Figure 4, which correlates the other transfer cuts per capita in the period of our analysis against the values of the IMU reform per capita. The solid line represents the linear approximation and shows that there is no correlation between the IMU reform and any other policy that changed transfers at municipal level during the years of our analysis.

We also consider the effects of including or excluding controls in the specification in Equation 3. First, we consider including province-year fixed effects, which would account for any shock at the provincial level that could be correlated with municipal behaviour in a specific year, such as the economic condition in that province. Table 9 shows that the discretion results are largely robust to the inclusion of province-year fixed effects, and Table 10 shows that the responsibility results are robust as well. We also show in Tables A7 and A8 that the results are robust to the inclusion or exclusion of controls for population, other transfer cuts, and whether the municipality is subject the *Domestic Stability Pact*. Finally in Table A12 we show that the results are robust to the inclusion on controls for amount of waste collected and number of buildings with waste collection services to take into account a waste collection tax that was implemented as well in this time period.

6 Conclusion

In the recent decades, many countries have delegated greater discretion and responsibility to local public bodies in the form of decentralization reforms. This pattern poses the empirical question of whether local governments behave similarly under a decentralized system as they would in a more centralized system, and whether this has consequences on public expenditure and the provision of public goods.

We study a decentralization reform implemented in Italy in 2012 that coupled a decrease

in national transfers to municipalities with increases in revenue-raising responsibility and discretion. This reform has features that are common to many decentralization reforms: it gave local authorities more discretion over the tax rate, and it increased local their fiscal responsibility to fund spending through taxation rather than transfers.

We find that on average, municipalities exercise their newfound discretion by picking tax rates higher than what the national government would have. We document several sources of heterogeneity, like local economic conditions and the level of local political competition, in line with both the "first generation" and "second geneartion" theories of fiscal federalism.

We then study whether municipalities change their budgetary behaviour in response to an increase in their revenue-raising responsibility. Municipalities respond to the increase in own revenue share by increasing total revenue, and on average spend the additional revenue on services and administration. We do not detect any change in the provision of public goods, at least in the two years after the reform. Finally, we show how electoral incentives and local characteristics can influence the effect of additional responsibility. Given the same impact of the reform, municipalities with greater political competition spend more on public services, but less on administration and remuneration of public officials. Municipalities with worse economic conditions shift revenue collection toward property taxes on non-main residences, and spend more of the additional revenue on services rather than administration and remuneration.

Taken together, the results indicate that decentralization does indeed make a difference for the revenue and expenditure behavior of local governments, and that the direction and magnitude of the response is influenced by heterogeneity across localities. As countries consider whether to continue decentralizing fiscal authority to local entities, policymakers should anticipate these changes in budgetary decisions and their interactions with local characteristics and conditions.

References

Albornoz, Facundo and Antonio Cabrales, "Decentralization, political competition and corruption," *Journal of Development Economics*, November 2013, *105*, 103–111.

Ambrosanio, Maria Flavia, Paolo Balduzzi, and Massimo Bordignon, "Economic crisis and fiscal federalism in Italy," Working paper, Società Italiana di Economia Pubblica September 2014.

Barankay, Iwan and Ben Lockwood, "Decentralization and the productive efficiency of government: Evidence from Swiss cantons," *Journal of Public Economics*, June 2007, *91* (5), 1197–1218.

Bardhan, Pranab and Dilip Mookherjee, "Decentralisation and Accountability in Infrastructure Delivery in Developing Countries," *The Economic Journal*, January 2006, *116* (508), 101–127.

Besley, Timothy and Stephen Coate, "Centralized versus decentralized provision of local public goods: a political economy approach," *Journal of Public Economics*, December 2003, *87* (12), 2611–2637.

Bianchi, Nicola, Michela Giorcelli, and Enrica Maria Martino, "The Effects of Fiscal Decentralization on Publicly Provided Services and Labor Markets," Technical Report 71 JEL Classification: H71, H75, J20, H77, I21, Centre for Household, Income, Labour and Demographic Economics (CHILD) - CCA 2019. Publication Title: CHILD Working Papers Series.

Boffa, Federico, Amedeo Piolatto, and Giacomo A. M. Ponzetto, "Political Centralization and Government Accountability *," *The Quarterly Journal of Economics*, February 2016, *131* (1), 381–422.

Bordignon, Massimo, Matteo Gamalerio, and Gilberto Turati, "Manager or professional politician? Local fiscal autonomy and the skills of elected officials," *Regional Science and Urban Economics*, July 2020, *83*, 103529.

Brollo, Fernanda, Tommaso Nannicini, Roberto Perotti, and Guido Tabellini, "The Political Resource Curse," *American Economic Review*, August 2013, *103* (5), 1759–1796.

Casaburi, Lorenzo and Ugo Troiano, "Ghost-House Busters: The Electoral Response to a Large Anti–Tax Evasion Program," *The Quarterly Journal of Economics*, February 2016, *131* (1), 273–314.

Caselli, Francesco and Guy Michaels, "Do Oil Windfalls Improve Living Standards? Evidence from Brazil," *American Economic Journal: Applied Economics*, January 2013, *5* (1), 208–238.

Enikolopov, Ruben and Ekaterina Zhuravskaya, "Decentralization and political institutions," *Journal of Public Economics*, December 2007, *91* (11), 2261–2290.

Faguet, Jean-Paul, "Does decentralization increase government responsiveness to local needs?: Evidence from Bolivia," *Journal of Public Economics*, March 2004, *88* (3), 867–893.

Gadenne, Lucie, "Tax Me, but Spend Wisely? Sources of Public Finance and Government Accountability," *American Economic Journal: Applied Economics*, 2017, *9* (1), 274–314.

Martinez, Luis R., "Sources of Revenue and Government Performance: Evidence from Colombia," SSRN Scholarly Paper ID 3273001, Social Science Research Network, Rochester, NY January 2016.

Musgrave, Richard A, *The theory of public finance: a study in public economy*, New York: McGraw-Hill, 1959. OCLC: 243503.

Oates, Wallace, "Toward A Second-Generation Theory of Fiscal Federalism," *International Tax and Public Finance*, 2005, *12* (4), 349–373.

Oates, Wallace E., *Fiscal Federalism*, Harcourt Brace Jovanovich, 1972. Google-Books-ID: nh6zAAAAIAAJ.

OECD, "OECD Fiscal Decentralisation Database. Tax revenue as percentage of total general government tax revenue (Table 9)," 2019.

Persson, Torsten and Guido Enrico Tabellini, *Political Economics: Explaining Economic Policy*, MIT Press, 2002. Google-Books-ID: q3h_M3QI7OYC.

Seabright, Paul, "Accountability and decentralisation in government: An incomplete contracts model," *European Economic Review*, 1996, *40* (1), 61–89.

Shleifer, Andrei and Robert W. Vishny, "Corruption," *The Quarterly Journal of Economics*, August 1993, *108* (3), 599–617.

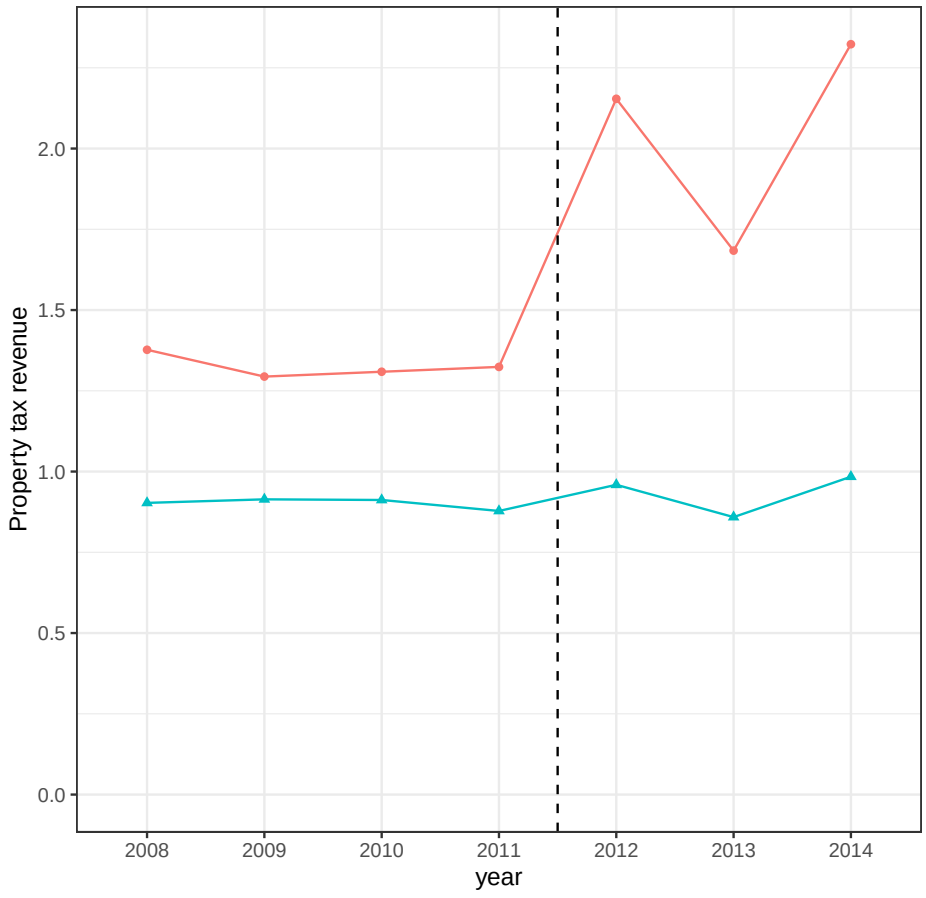
Strumpf, Koleman S. and Felix Oberholzer-Gee, "Endogenous Policy Decentralization: Testing the Central Tenet of Economic Federalism," *Journal of Political Economy*, 2002, *110* (1), 1–36. Publisher: The University of Chicago Press.

Tiebout, Charles M., "A Pure Theory of Local Expenditures," *Journal of Political Economy*, 1956, *64* (5), 416–424.

Tommasi, Mariano and Federico Weinschelbaum, "Centralization vs. Decentralization: A Principal-Agent Analysis," *Journal of Public Economic Theory*, 2007, *9* (2), 369–389. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1467-9779.2007.00311.x.

7 Figures

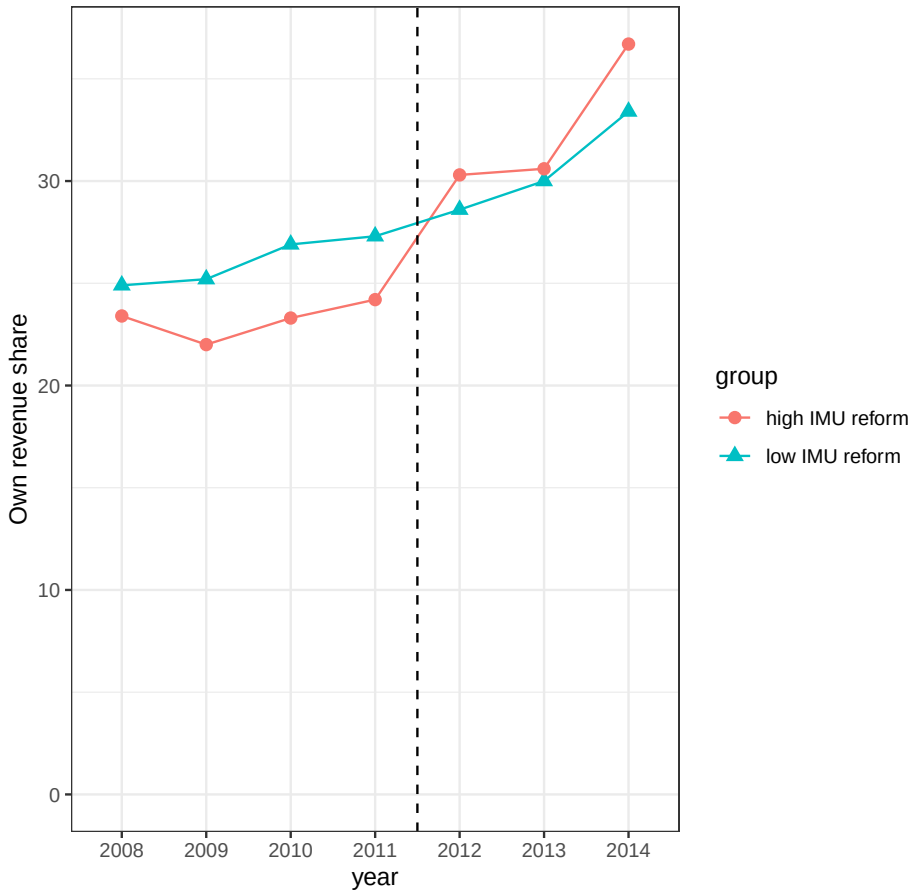
Figure 1: Event study of reform on municipal property tax collected



e

This figure plots the trend of the property tax revenue for municipalities with above- and below-median impact of the IMU reform, measured by the expected IMU as a share of 2011 revenue. Above-median municipalities are denoted in the red dotted line and below-median are in the blue line.

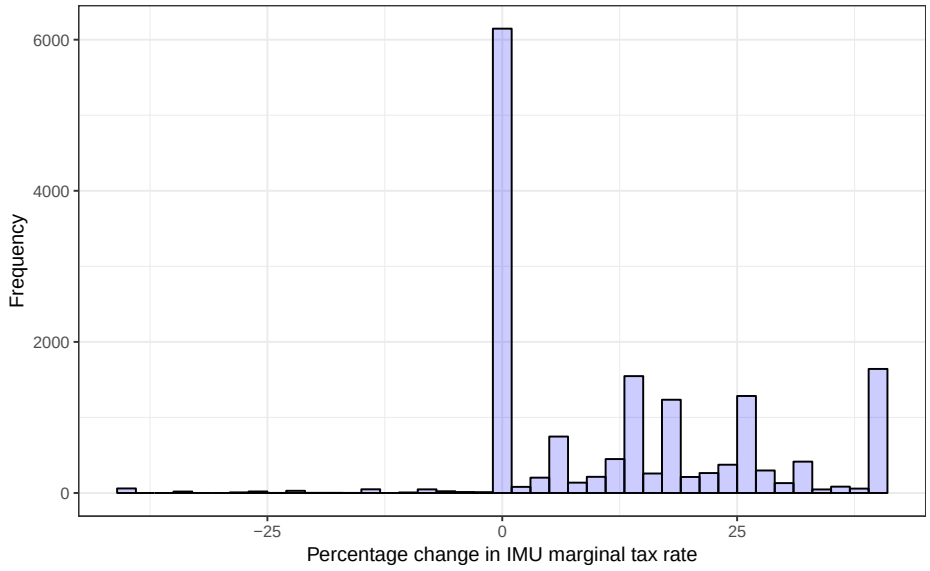
Figure 2: Trend of the own revenue share



e

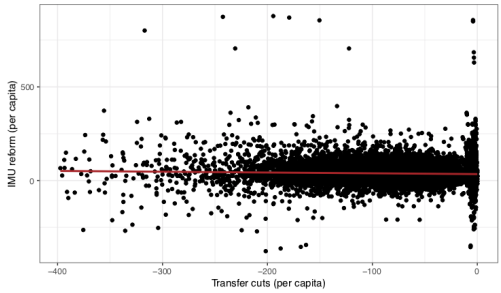
This figure plots the trend of *OwnRevenueShare* for municipalities with above- and below-median impact of the IMU reform, measured by the expected IMU as a share of 2011 revenue. Above-median municipalities are denoted in the red dotted line and below-median are in the blue line. Own revenue share is defined as the share of a municipality's revenue that is raised through taxation (rather than transfers).

Figure 3: Difference between actual IMU property tax rate and the national suggested tax rate

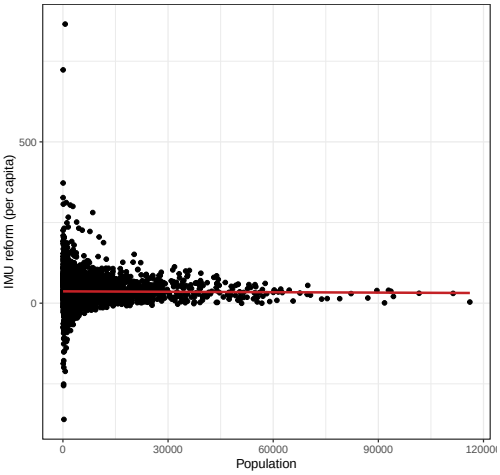


The figure shows the distribution of the deviation of the actual property tax rate from the nationally suggested tax rate for base buildings. The data on the nationally suggested tax rate and the actual IMU tax rates are collected by IFEL. The numerator of the ratio is the difference between the actual tax rate and the national suggested municipal tax rate, and the denominator is the national suggested municipal tax rate.

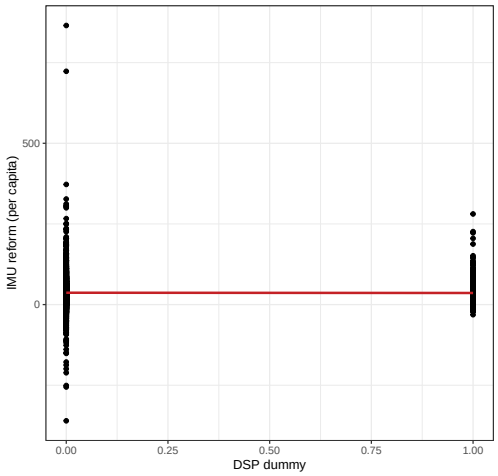
Figure 4: Correlation between transfer cuts from IMU and control variables.



(a) Correlation between transfer cuts from IMU and transfer cuts from other reforms



(b) Correlation between transfer cuts from IMU and population



(c) Correlation between transfer cuts from IMU and being subject to *DSP*

The figure shows the control variables (transfer cuts from other reforms, population, and being subject to the *DSP* policy) on the x-axis and the level of the IMU reform (per capita) on the y-axis. The solid line is the fitted line, which shows there is no correlation between the transfers from the IMU reform and all the control variables.

8 Tables

Table 1: Descriptive Statistics

	Mean	Median	Std Dev.
Total Expenditure (thousands of Euro)	6,188	2,903	(12,143)
Share of expenditure by sectors:			
Services	0.57		(0.11)
Administration	0.28		(0.09)
Debt repayment	0.07		(0.08)
Other expenditure	0.08		(0.05)
Total Revenue (thousands of Euro)	6,152	2,871	(12,111)
Share of revenue by source:			
Property tax	0.13		(0.08)
Transfers from national gov.	0.19		(0.08)
New loans	0.08		(0.11)
Other taxes	0.11		(0.06)
Other transfers	0.09		(0.06)
Other revenues	0.40		(0.13)
Public goods per 1000 people			
N. of nursery schools	17	0	(2,208)
N. local police employees	27	1	(1,317)
Waste collected (tons per capita)	17	1	(370)
Km of public lights	206	32	(4,927)
Property tax characteristics			
Amount of the IMU reform (thousands of Euro)	192		(394)
Amount of the IMU reform (as share of 2011 revenue)	0.03		(0.03)
Property tax rate buildings	0.006		(0.0007)
Municipality characteristics			
OwnRevShare (%)	23		(10)
Population	5,460	2,402	(9,306)
Unemployment rate	0.09		(0.06)
Sh. poor families	0.02		(0.02)
Margin of victory	0.26	0.18	(0.26)
Sh are subject to DSP	0.29		(0.45)
N. municipalities	5,779	5,779	5,779

The table shows the descriptive statistics of the variables used in this paper. We show respectively: the average yearly expenditure by sectors, the average yearly revenue by source, the public good provision, the average impact of the reform, the average population, the average local economic conditions, the average margin of victory and the share of municipalities subject to the DSP at least once in the period. All statistics are based on observations up to 2011.

Table 2: Effect of greater discretion on choice of base building tax rate

	(1)	(2)	(3)	(4)	(5)	(6)
	Percent deviation from national suggested tax rate					
$PostIMU_t$	0.022***	0.012***	0.018***	0.011***	0.005*	-0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
$\times HighUnempl.$		0.019***				
		(0.004)				
$\times HighPoor$			0.008**			
			(0.004)			
$\times LowTax$				0.022***		
				(0.004)		
$\times DSP$					0.038***	
					(0.004)	
$\times HighIMUreform$						0.051***
						(0.004)
Population	X	X	X	X	X	X
Other transfer cuts	X	X	X	X	X	X
Subject to the DSP	X	X	X	X	X	X
Observations	34,009	34,009	34,009	34,009	34,009	34,009
N. of municipalities	5,779	5,779	5,779	5,779	5,779	5,779

This table shows the results from the specification in Equation 1. Outcome variable is the percent deviation from the nationally suggested tax rate for the base buildings. We define the suggested tax rate after 2012 as 0.76%, and before 2012 as 0.55%. $HighUnempl.$ is a dummy taking value 1 if the municipality has an unemployment rate larger than the median in 2011 (7.6 percent), $HighPoor$ is a dummy taking value 1 if the share of families living in poor economic conditions is larger than the median in 2011 (1.3 percent), $LowTax$ is a dummy taking value 1 if the municipal tax revenue per capita is smaller than the median in 2011 (261 Euro), DSP is a dummy taking value 1 if the municipality was subject to fiscal rules in 2011 and $HighIMUreform$ is a dummy which has value one if the share of the expected additional revenue from IMU on 2011 total revenue is larger than the one in the median municipality (3 percent). All regressions are controlled for population, value of other transfers, an indicator taking value 1 if the municipality is subject to the DSP. All standard errors are clustered at municipality level.

Table 3: First stage: effect of IMU reform on own revenue share

	(1)	(2)	(3)
	$OwnRevShare_{mt}$		
$IMURevShare_m \times PostIMU_t$	0.763***	0.757***	0.736***
	(0.038)	(0.038)	(0.036)
Population	X	X	X
Other transfer cuts		X	X
Subject to the DSP			X
N. of observations	39,773	39,773	39,773
N. of municipalities	5,779	5,779	5,779

This table shows the first stage of Equation 3. The outcome variable is own revenue share, which is defined as the share of a municipality's revenue that the municipality raises through own taxation. The denominator, municipal revenue, is the sum of tax revenue, transfers, and other revenue sources. The numerator, own tax revenue, is the sum of property tax, the tax on personal income (i.e. *IRPEF*), trash, taxes from public occupation, and other minor taxes. $IMURevShare_m$ is defined as the municipality's expected revenue from the IMU reform (equal to the reduction in transfers) divided by a municipality's total revenue in 2011, $\frac{ExpIMURev_m}{TotRev_{m,2011}}$, and measures the impact of the additional expected revenue from the IMU reform on the pre-reform municipal revenue. We control for municipality and year fixed effects, log of population, log of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP in a given year. Standard errors are clustered at the municipality level.

Table 4: Effect of own revenue share on the budgetary behaviour of municipalities

Panel A: Revenue				
	(1)	(2)	(3)	(4)
	Log total revenue	Log non-IMU tax	Debt	Log other revenue
$\widehat{OwnRevShare}$	0.004***	0.011***	-0.003	0.003
	(0.001)	(0.004)	(0.002)	(0.002)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,773	39,773	36,669	39,773
N. of municipalities	5,779	5,779	5,384	5,779
F stat.	441.574	409.663	365.438	409.663

Panel B: Expenditure				
	(5)	(6)	(7)	(8)
	Log total expenditure	Log service expenditure	Log administration expenditure	Log remuneration expenditure
$\widehat{OwnRevShare}$	0.004***	0.005***	0.004***	0.001
	(0.001)	(0.002)	(0.001)	(0.002)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,773	39,769	39,770	39,672
N. of municipalities	5,779	5,779	5,779	5,773
F stat.	409.663	409.829	409.822	406.299

Panel C: Public Goods				
	(5)	(6)	(7)	(8)
	Nursery school	Log n police officers	Log waste collected (tons)	Log n lights
$\widehat{OwnRevShare}$	-0.001	-0.001	-0.018	-0.002
	(0.001)	(0.002)	(0.014)	(0.002)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,773	24,181	26,679	27,911
N. of municipalities	5,779	4,143	4,692	4,707
F stat.	409.663	368.405	235.894	397.562

The table shows the results of the second stage in Equation 3, where *OwnRevShare* ranges from 0 to 100. *Panel A* shows the results on the logarithm of following outcome variables: total revenue, tax revenue from all taxes but IMU, the level of debts and other revenue. *Panel B* shows the results on the logarithm of following outcome variables: total expenditure, expenditure for services, expenditure for administration, and the remuneration of public officials. *Panel C* shows the results on a dummy taking value 1 whether there is a nursery school, the logarithm of the number of police officers, logarithm of the waste collected, the logarithm of the number of lights. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table 5: Second stage: effect of own revenue share on municipal budgets, interacted with mayoral margin of victory

Panel A: Revenue				
	(1)	(2)	(3)	(4)
	Log total revenue	Log non-IMU tax	Debt	Log other revenue
$\widehat{OwnRevShare}$	0.0046***	0.0103**	-0.0043**	0.0059***
	(0.0011)	(0.0044)	(0.0018)	(0.0022)
$\widehat{OwnRevShare \times MarginVictory}$	-0.0003*	0.0003	0.0006*	-0.001***
	(0.0001)	(0.0004)	(0.0003)	(0.0003)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,773	39,773	36,669	39,773
N. of municipalities	5,779	5,779	5,384	5,779
F stat.	181.438	181.438	166.584	181.438

Panel B: Expenditure				
	(5)	(6)	(7)	(8)
	Log total expenditure	Log service expenditure	Log administration expenditure	Log remuneration expenditure
$\widehat{OwnRevShare}$	0.0045***	0.0065***	0.0036***	-0.0002
	(0.0011)	(0.002)	(0.001)	(0.002)
$\widehat{OwnRevShare \times MarginVictory}$	-0.0002	-0.0006***	0.0003*	0.0006*
	(0.0002)	(0.0002)	(0.0002)	(0.0004)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,773	39,769	39,770	39,672
N. of municipalities	5,779	5,779	5,779	5,773
F stat.	181.438	181.598	181.621	179.925

Panel C: Public Goods				
	(5)	(6)	(7)	(8)
	Nursery school	Log n police officers	Log waste collected (tons)	Log n lights
$\widehat{OwnRevShare}$	0.0003	-0.0006	-0.0088	-0.0016
	(0.001)	(0.0016)	(0.0151)	(0.0018)
$\widehat{OwnRevShare \times MarginVictory}$	-0.0004***	0.0001	-0.0040***	0.0001
	(0.0001)	(0.0002)	(0.0015)	(0.0003)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39773	24,181	26,735	27,996
N. of municipalities	5,779	4,143	4,692	4,707
F stat.	181.438	184.004	107.170	196.709

This table shows the results of the second stage of Equation 3 interacted with $MarginVictory$, where $OwnRevShare$ ranges from 0 to 100. *Panel A* shows the results on the logarithm of following outcome variables: total revenue, tax revenue from all taxes but IMU, the level of debts and other revenue. *Panel B* shows the results on the logarithm of following outcome variables: total expenditure, expenditure for services, expenditure for administration, and the remuneration of public officials. *Panel C* shows the results on a dummy taking value 1 whether there is a nursery school, the logarithm of the number of police officers, logarithm of the waste collected, the logarithm of the number of lights. $MarginVictory$ is the difference in percentage points between the incumbent and the second most voted candidate at the last election. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table 6: Second stage: effect of own revenue share on municipal revenue, interacted with local economic characteristics.

	(1) Log total revenue	(2) Log total revenue	(3) Log total revenue	(4) Log non-IMU tax	(5) Log non-IMU tax	(6) Log non-IMU tax
$\widehat{OwnRevShare}$	0.004***	0.004***	0.004***	0.011***	0.011***	0.012***
	(0.001)	(0.001)	(0.001)	(0.004)	(0.004)	(0.004)
$\times \widehat{HighUnempl.}$		0.002***			-0.002	
		(0.001)			(0.003)	
$\times \widehat{HighPoor}$			0.012***			-0.004*
			(0.001)			(0.003)
N. of observations	39,773	39,773	39,773	39,773	39,773	39,773
N. of municipalities	5,769	5,769	5,779	5,779	5,779	5,779
F stat.						

	(1) Debt	(2) Debt	(3) Debt	(4) Log other revenue	(5) Log other revenue	(6) Log other revenue
$\widehat{OwnRevShare}$	-0.003	-0.004**	-0.004**	0.003	0.003	0.004*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
$\times \widehat{HighUnempl.}$		0.004***			-0.000	
		(0.001)			(0.001)	
$\times \widehat{HighPoor}$			0.005***			-0.002*
			(0.001)			(0.001)
N. of observations	36,669	36,669	36,669	39,773	39,773	39,773
N. of municipalities	5,384	5,384	5,384	5,779	5,779	5,779
F stat.						

This table shows the results of the second stage of Equation 3, where *OwnRevShare* ranges from 0 to 100. The table shows the results on the logarithm of following outcome variables: total revenue, tax revenue from all taxes but IMU, the level of debts and other revenue. *HighUnempl.* is a dummy taking value 1 if the unemployment rate in the municipality is greater than the national median in 2011, *HighPoor* is a dummy taking value 1 if the share of families living in poor condition is greater than the median municipality in 2011. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table 7: Second stage: effect of own revenue share on municipal expenditure, interacted with local economic characteristics.

	(1) Log total expenditure	(2) Log total expenditure	(3) Log total expenditure	(4) Log service expenditure	(5) Log service expenditure	(6) Log service expenditure
$\widehat{OwnRevShare}$	0.004***	0.004***	0.004***	0.005***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
$\times \widehat{HighUnempl.}$		0.001*			0.002**	
		(0.001)			(0.001)	
$\times \widehat{HighPoor}$			0.001*			0.001
			(0.000)			(0.001)
N. of observations	39,773	39,773	39,773	39,769	39,769	39,769
N. of municipalities	5,779	5,779	5,779	5,779	5,779	5,779
F stat.	409.663	227.504	211.504	409.829	227.305	221.600

	(1) Log administration expenditure	(2) Log administration expenditure	(3) Log administration expenditure	(4) Log remuneration expenditure	(5) Log remuneration expenditure	(6) Log remuneration expenditure
$\widehat{OwnRevShare}$	0.004***	0.005***	0.004***	0.001	0.001	0.002
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
$\times \widehat{HighUnempl.}$		-0.002**			-0.001	
		(0.001)			(0.001)	
$\times \widehat{HighPoor}$			0.000			-0.004***
			(0.000)			(0.001)
N. of observations	39,770	39,770	39,770	39,672	39,672	39,672
N. of municipalities	5,779	5,779	5,779	5,773	5,773	5,773
F stat.	409.822	227.311	221.601	406.299	225.205	219.731

This table shows the results of the second stage of Equation 3, where *OwnRevShare* ranges from 0 to 100. The table shows the results on the logarithm of following outcome variables: total expenditure, expenditure for services, expenditure for administration, and the remuneration of public officials. *HighUnempl.* is a dummy taking value 1 if the unemployment rate in the municipality is greater than the national median in 2011, *HighPoor* is a dummy taking value 1 if the share of families living in poor condition is greater than the median municipality in 2011. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table 8: Second stage: effect of own revenue share on municipal public good provision, interacted with local economic characteristics.

	(1) Nursery School	(2) Nursery School	(3) Nursery School	(4) N. Police officers	(5) N. Police officers	(6) N. Police officers
$\widehat{OwnRevShare}$	-0.001	-0.001	-0.001	-0.001	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
$\times \widehat{HighUnempl.}$		0.002***			0.000	
		(0.001)			(0.001)	
$\times \widehat{HighPoor}$			0.001**			0.000
			(0.001)			(0.001)
N. of observations	39,773	39,773	39,773	24,181	24,181	24,181
N. of municipalities	5,779	5,779	5,779	4,143	4,143	4,143
F stat.	409.663	227.195	221.504	368.405	200.734	187.608

	(1) Log Waste collected (tons)	(2) Log Waste collected (tons)	(3) Log Waste collected (tons)	(4) N. lights	(5) N. lights	(6) N. lights
$\widehat{OwnRevShare}$	-0.018	-0.019	-0.021	-0.002	-0.001	-0.001
	(0.014)	(0.014)	(0.014)	(0.002)	(0.002)	(0.002)
$\times \widehat{HighUnempl.}$		0.004			-0.001	
		(0.009)			(0.001)	
$\times \widehat{HighPoor}$			0.010			-0.001
			(0.008)			(0.001)
N. of observations	26,679	26,679	26,679	27,911	27,911	27,911
N. of municipalities	4,692	4,692	4,692	4,707	4,707	4,707
F stat.	235.894	130.03	127.003	397.562	209.381	201.374

This table shows the results of the second stage of Equation 3, where *OwnRevShare* ranges from 0 to 100. The table shows the results on a dummy taking value 1 whether there is a nursery school, the logarithm of the number of police officers, logarithm of the waste collected, the logarithm of the number of lights. *HighUnempl.* is a dummy taking value 1 if the unemployment rate in the municipality is greater than the national median in 2011, *HighPoor* is a dummy taking value 1 if the share of families living in poor condition is greater than the median municipality in 2011. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table 9: Robustness: Effect of greater discretion, with province-year FEs

	(1)	(2)	(3)	(4)	(5)	(6)
	Percent deviation from national suggested tax rate for base buildings					
$Post2012$	0.062	0.058	0.062	0.062	0.023	0.012
	(0.047)	(0.047)	(0.047)	(0.047)	(0.050)	(0.047)
$\times HighUnempl.$		0.013**				
		(0.005)				
$\times HighPoor$			0.0002			
			(0.005)			
$\times LowTax$				0.030***		
				(0.004)		
$\times DSP$					0.048***	
					(0.005)	
$\times HighIMUreform$						0.061***
						(0.004)
Population	X	X	X	X	X	X
Other transfer cuts	X	X	X	X	X	X
Subject to the DSP	X	X	X	X	X	X
Observations	34,009	34,009	34,009	34,009	34,009	34,009
N. of municipalities	5,779	5,779	5,779	5,779	5,779	5,779
Province-year fixed effects	X	X	X	X	X	X

This table shows the results from the specification in Equation 1, including province-year fixed effects. Outcome variable is the percent deviation from the nationally suggested tax rate for base buildings. We define the suggested tax rate after 2012 as 0.76%, and before 2012 as 0.55%. $HighUnempl.$ is a dummy taking value 1 if the municipality has an unemployment rate larger than the median in 2011 (7.6 percent), $HighPoor$ is a dummy taking value 1 if the share of families living in poor economic conditions is larger than the median in 2011 (1.3 percent), $LowTax$ is a dummy taking value 1 if the municipal tax revenue per capita is smaller than the median in 2011 (261 Euro), DSP is a dummy taking value 1 if the municipality was subject to fiscal rules in 2011 and $HighIMUreform$ is a dummy which has value one if the share of the expected additional revenue from IMU on 2011 total revenue is larger than the one in the median municipality (3 percent). All regressions are controlled for population, value of other transfers, an indicator taking value 1 if the municipality is subject to the DSP. All standard errors are clustered at municipality level. All regressions include province times year fixed effects.

Table 10: Robustness: effect of own revenue share on the budgetary behaviour of municipalities, with province-year FEs

Panel A				
	(1)	(2)	(3)	(4)
	Tot. Rev.	Other taxes	Debt	Other Rev.
$\widehat{OwnRevShare}$	0.007***	0.154***	0.002	0.007***
	(0.001)	(0.005)	(0.002)	(0.002)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,773	39,773	36,669	39,773
N. of municipalities	5,779	5,779	5,384	5,779
F stat.	317.206	317.206	284.532	317.206
Province-year fixed effects	X	X	X	X

Panel B				
	(5)	(6)	(7)	(8)
	Tot. Exp.	Services	Administration	Remuneration
$\widehat{OwnRevShare}$	0.006***	0.008***	0.004***	-0.001
	(0.001)	(0.002)	(0.001)	(0.003)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,773	39,773	36,669	39,672
N. of municipalities	5,779	5,779	5,779	5,773
F stat.	317.206	317.411	317.425	315.201
Province-year fixed effects	X	X	X	X

Panel C				
	(5)	(6)	(7)	(8)
	Nursery School	N. Police officers	Waste collected	N. lights
$\widehat{OwnRevShare}$	0.001	-0.001	0.006	-0.000
	(0.001)	(0.002)	(0.017)	(0.002)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,773	24,181	26,678	27,911
N. of municipalities	5,779	4,143	4,690	4,707
F stat.	317.206	314.336	163.846	337.249
Province-year fixed effects	X	X	X	X

The table shows the results of the second stage of Equation 3 where *OwnRevShare* ranges from 0 to 100, with province-year fixed effects. *Panel A* shows the results on the logarithm of following outcome variables: total revenue, tax revenue from all taxes but IMU, the level of debts and other revenue. *Panel B* shows the results on the logarithm of following outcome variables: total expenditure, expenditure for services, expenditure for administration, and the remuneration of public officials. *Panel C* shows the results on a dummy taking value 1 whether there is a nursery school, the logarithm of the number of police officers, logarithm of the waste collected, the logarithm of the number of lights. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level. All regressions include province times year fixed effects.

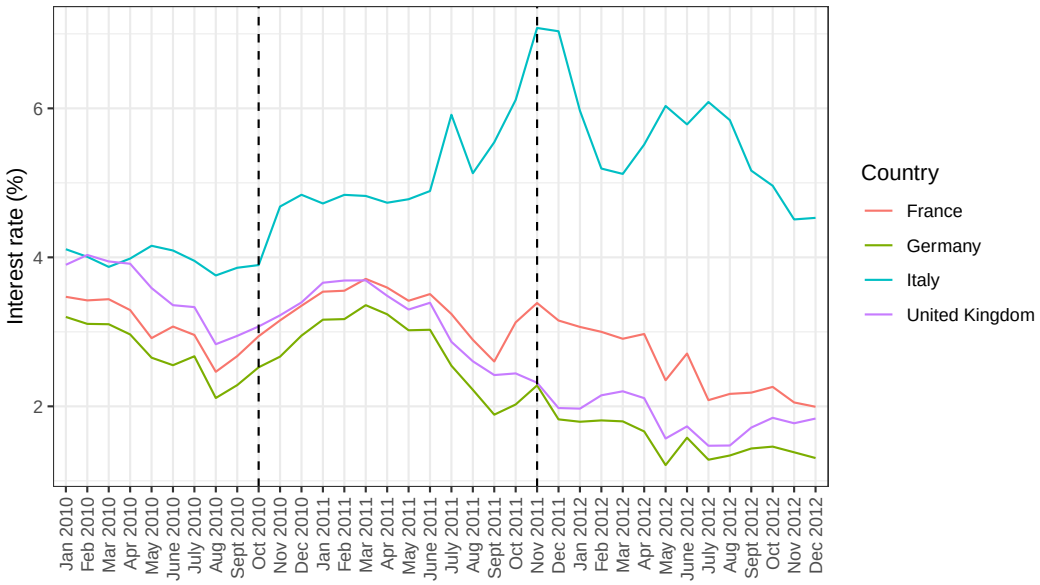
Table 11: Robustness: Effect of greater discretion on choice of base building tax rate, with a different measure of pre-reform national suggestion

	(1)	(2)	(3)	(4)	(5)	(6)
	Percent deviation from national suggested tax rate					
$Post2012$	0.161***	0.152***	0.156***	0.153***	0.141***	0.138***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
$\times HighUnempl.$		0.019***				
		(0.004)				
$\times HighPoor$			0.010***			
			(0.004)			
$\times LowTax$				0.015***		
				(0.004)		
$\times DSP$					0.046***	
					(0.004)	
$\times HighIMUreform$						0.047***
						(0.004)
Population	X	X	X	X	X	X
Other transfer cuts	X	X	X	X	X	X
Subject to the DSP	X	X	X	X	X	X
Observations	34,009	34,009	34,009	34,009	34,009	34,009
N. of municipalities	5,779	5,779	5,779	5,779	5,779	5,779

This table shows the results from the specification in Equation 1. Outcome variable is the percent deviation from the nationally suggested tax rate for base buildings. We define the suggested tax rate after 2012 as 0.76%, and before 2012 as 0.627%. $HighUnempl.$ is a dummy taking value 1 if the municipality has an unemployment rate larger than the median in 2011 (7.6 percent), $HighPoor$ is a dummy taking value 1 if the share of families living in poor economic conditions is larger than the median in 2011 (1.3 percent), $LowTax$ is a dummy taking value 1 if the municipal tax revenue per capita is smaller than the median in 2011 (261 Euro), DSP is a dummy taking value 1 if the municipality was subject to fiscal rules in 2011 and $HighIMUreform$ is a dummy which has value one if the share of the expected additional revenue from IMU on 2011 total revenue is larger than the one in the median municipality (3 percent). All standard errors are clustered at municipality level. We impute the average of the property tax rate pre-2012 as the national government suggestion pre-2012.

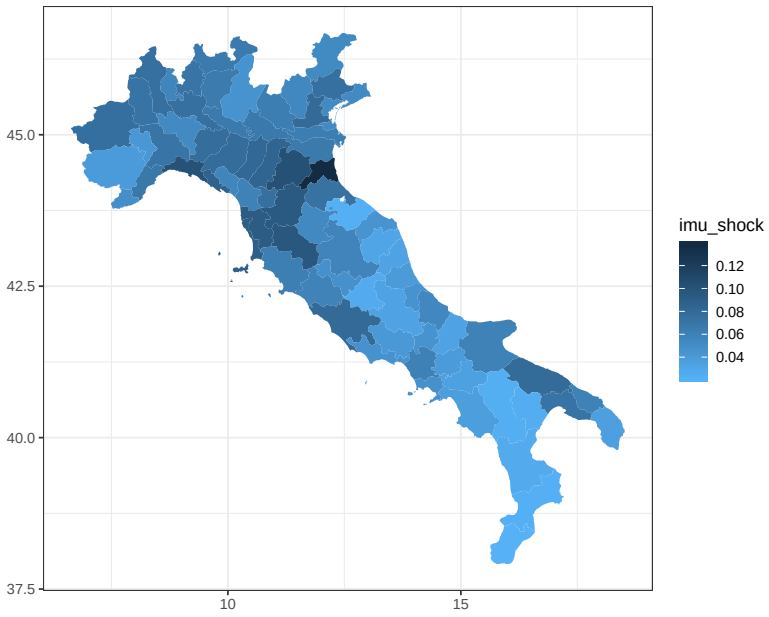
A Appendix Figures and Tables

Figure A1: Trend of interest rates on sovereign debts



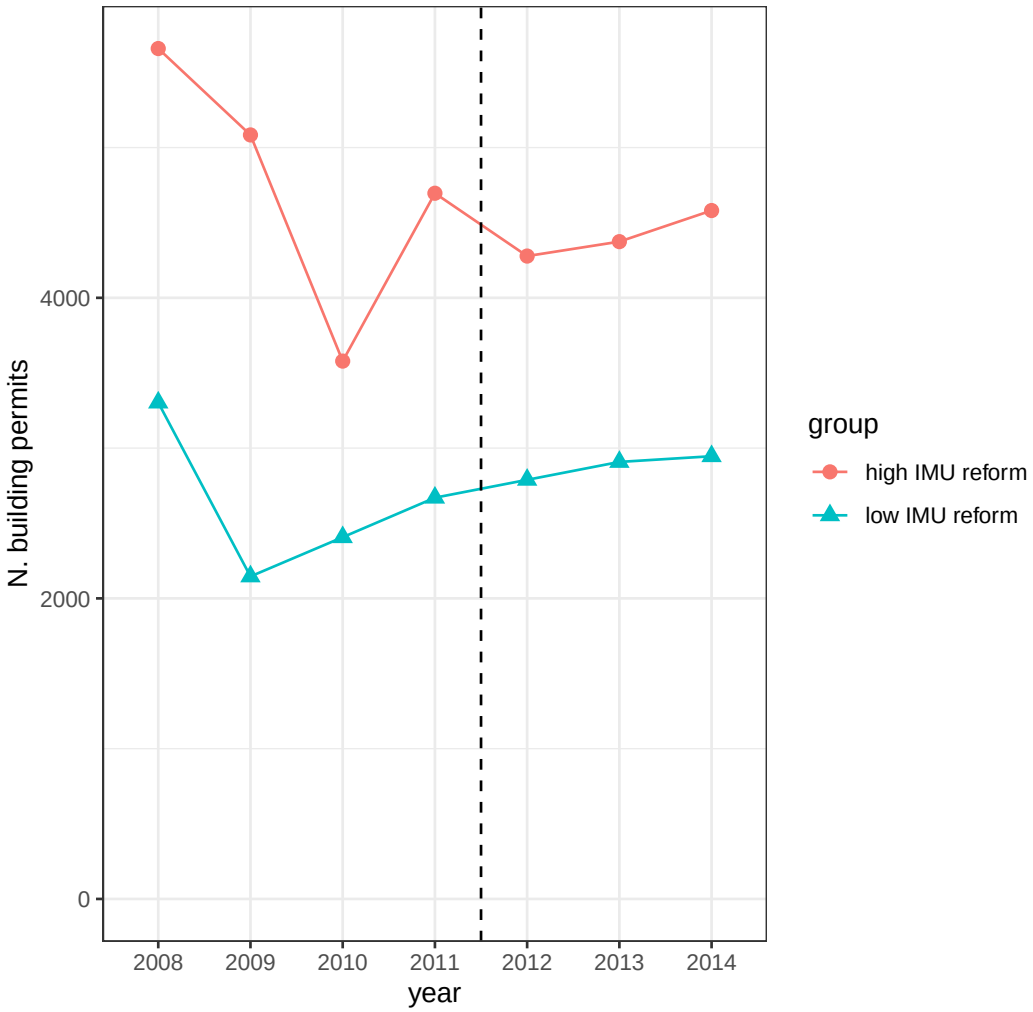
The figure represents the trend of the interest rates of national bonds by different European countries. The dotted line in Oct 2010 is when the Greek government announced the inability of repaying part of the public debts. The dotted line in Nov 2011 shows the month of the resign of the Italian government. The next government implemented the IMU reform.

Figure A2: Impact of the IMU reform by Italian province



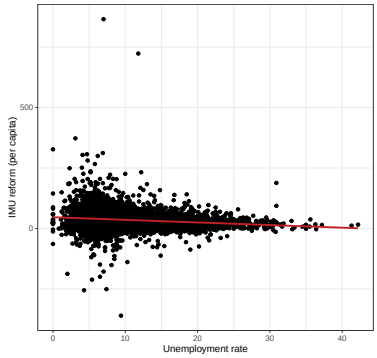
The figure represents the impact of the IMU reform as share of the municipalities' revenue in 2011. The numerator is the value of the expected additional revenue that municipalities would have collected with the property tax rate suggested by the national government (i.e. equal to the value of transfers cut). The denominator is the municipal revenue in 2011. The analysis excludes municipalities in Sicily, Sardinia, Friuli Venezia Giulia, Valle d'Aosta and Trentino Alto Adige, which faced different (regional) regulation on IMU.

Figure A3: Number of buildings

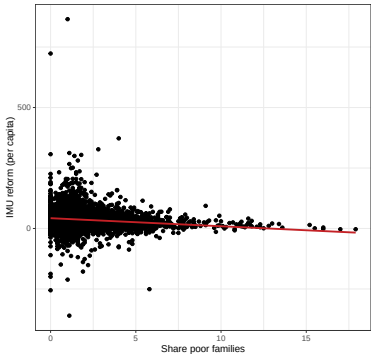


This figure plots the trend of *OwnRevenueShare* for municipalities with above- and below-median impact of the IMU reform, measured by the expected IMU as a share of 2011 revenue. Above where above-median municipalities are denoted in the red dotted line and below-median are in the blue line.

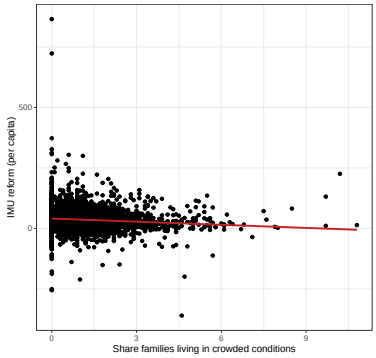
Figure A4: Correlation between transfer cuts from IMU and municipal variables.



(a) Correlation between transfer cuts from IMU and unemployment rate



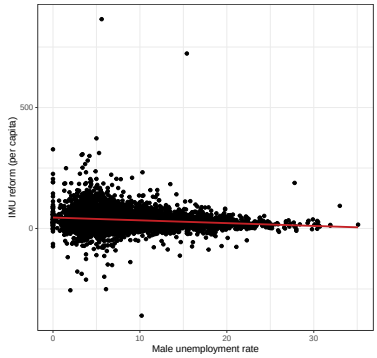
(b) Correlation between transfer cuts from IMU and share of poor families



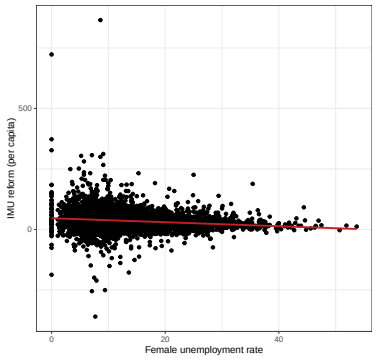
(c) Correlation between transfer cuts from IMU and share family in crowded conditions

The figure shows different municipal variables on the x-axis and the level of the IMU reform (per capita) on the y-axis. The solid line is the fitted line, which shows there is no correlation between the transfers from the IMU reform and all the municipal variables.

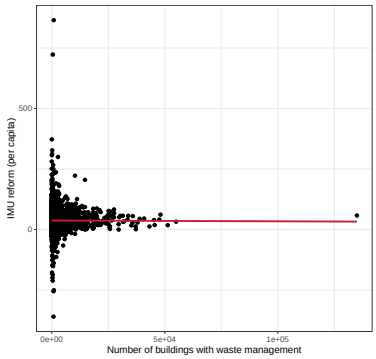
Figure A5: Correlation between transfer cuts from IMU and municipal variables.



(a) Correlation between transfer cuts from IMU and male unemployment rate



(b) Correlation between transfer cuts from IMU and female unemployment rate



(c) Correlation between transfer cuts from IMU and number of building with waste collection services

The figure shows different municipal variables on the x-axis and the level of the IMU reform (per capita) on the y-axis. The solid line is the fitted line, which shows there is no correlation between the transfers from the IMU reform and all the municipal variables.

Table A1: Balance Table

	Low IMU Impact	High IMU Impact	Difference
$IMURev_m$ (thousands Euro)	64.6	323.9	-259.3***
	(218.6)	(484.1)	(9.884)
Other transfers (thousands Euro)	1,523	1,572	-49.5
	(4,041)	(2,772)	(91.2)
Population	4,777	6,212	-1,438***
	(9,808)	(8,781)	(245)
Sh. subject to *DSP*	0.23	0.36	-0.13***
	(0.43)	(0.48)	(0.01)
Unemployment rate	0.10	0.09	0.01***
	(0.06)	(0.05)	(0.01)
Sh. poor families	0.02	0.02	0.00***
	(0.02)	(0.01)	(0.00)
Margin of victory	0.26	0.25	0.02**
	(0.23)	(0.21)	(0.01)
N. municipalities	2,887	2,888	

The table shows the pre-2011 averages of the control variables in our analysis. We compute the averages between municipalities more affected by the IMU reform (i.e. $IMURevShare_m$ greater than the median) and less affected. The third column shows the difference between the two means and the result of a T-test on whether the difference is statistically different from zero.

Table A2: Effect of greater discretion, other municipal characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
	Percent deviation from national suggested tax rate for base buildings					
$Post2012$	0.012***	0.014***	0.019***	0.029***	0.020***	0.035***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
$\times HighFemaleUnempl.$	0.020***					
	(0.004)					
$\times HighMaleUnempl$		0.017***				
		(0.004)				
$\times HighCrowded$			0.007*			
			(0.004)			
$\times LowOtherTax$				0.004		
				(0.004)		
$\times HighDebt$					0.004	
					(0.004)	
$\times LowNoIMUTransf$						-0.024***
						(0.004)
Population	X	X	X	X	X	X
Other transfer cuts	X	X	X	X	X	X
Subject to the DSP	X	X	X	X	X	X
Observations	34,009	34,009	34,009	34,009	34,009	34,009
N. of municipalities	5,779	5,779	5,779	5,779	5,779	5,779

This table shows the results from the specification in Equation 1. Outcome variable is the percent deviation from the nationally suggested tax rate for base buildings. We define the suggested tax rate after 2012 as 0.76%, and before 2012 as 0.55%. $HighFemaleUnempl$ is a dummy taking value 1 if the share of female unemployment is greater than the median, $HighMaleUnempl$ is a dummy taking value 1 if the share of male unemployment in 2011 is greater than the median, $HighCrowded$ is a dummy taking value 1 if the share of families in crowded conditions in 2011 is greater than the median, $LowOtherTax$ is a dummy taking value 1 if the the per capita tax revenue different from property tax in 2011 is smaller than the median, $HighDebt$ is a dummy taking value 1 if the the level of debt in 2011 is greater than the median, $LowNoIMUTransf$ is a dummy taking value 1 if the level of non-IMU transfers in 2011 is lower than the median. All regressions are controlled for population, value of other transfers, an indicator taking value 1 if the municipality is subject to the DSP. All standard errors are clustered at municipality level.

Table A3: Effect of greater discretion on municipalities deviating from national suggestion, for municipalities that deviated from the national suggestion

	(1)	(2)	(3)	(4)	(5)	(6)
	Percent deviation from national suggested tax rate for base buildings					
$Post2012$	0.061***	0.049***	0.053***	0.044***	0.049***	0.036***
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
$\times HighUnempl.$		0.025***				
		(0.005)				
$\times HighPoor$			0.017***			
			(0.005)			
$\times LowTax$				0.037***		
				(0.005)		
$\times DSP$					0.022***	
					(0.005)	
$\times HighIMUreform$						0.049***
						(0.005)
Population	X	X	X	X	X	X
Other transfer cuts	X	X	X	X	X	X
Subject to the DSP	X	X	X	X	X	X
Observations	20,772	20,772	20,772	20,772	20,772	20,772
N. of municipalities	3,530	3,530	3,530	3,530	3,530	3,530

This table shows the results from the specification in Equation 1. In this analysis, we focus on the municipalities that chose a tax rate different from the one suggested by the national government. Outcome variable is the percent deviation from the average possible tax rate. $LowTax$ is a dummy taking value 1 if the municipal tax revenue is smaller than the median in 2011, $HighUnempl.$ is a dummy taking value 1 if the municipality has an unemployment rate larger than the median in 2011, $HighCrowdedLiv.$ is a dummy taking value 1 if the share of families living in crowded conditions is larger than the median, DSP is a dummy taking value 1 if the municipality was subject to fiscal rules in 2011 and $HighIMUreform$ is a dummy taking value one if the municipality is impacted by the IMU reform more than the median municipality. All regressions are controlled for population, value of other transfers, an indicator taking value 1 if the municipality is subject to the DSP. All standard errors are clustered at municipality level. All regressions include only the municipalities who deviated at least once from the national government suggestion.

Table A4: Effect of greater discretion, interacted with political competition variables

	(1)	(2)	(3)
	Percent deviation from nat. suggested tax rate		
$Post2012$	0.029***	0.025***	0.022***
	(0.003)	(0.003)	(0.003)
$\times MarginVictory$		-0.003***	
		(0.001)	
$\times SecondMandate$			-0.002
			(0.004)
Population	X	X	X
Other transfer cuts	X	X	X
Subject to the DSP	X	X	X
Observations	34,009	34,009	34,009
N. of municipalities	5,779	5,779	5,779

This table shows the results from the specification in Equation 1. Outcome variable is the percent deviation from the nationally suggested tax rate for base buildings. We define the suggested tax rate after 2012 as 0.76%, and before 2012 as 0.55%. $MarginVictory$ is the difference in share of votes of the incumbent from the second most voted candidate at the last election before the IMU reform, $HighVictory$ is a dummy taking value 1 if the margin of victory is greater than the median, $SecondMandate$ is a dummy taking value 1 if the mayor is at his second mandate.

Table A5: Effect of own revenue share on expenditures by category of service

	(1) Social protection	(2) Territory and environment	(3) Roads and transport	(4) Instruction
$\widehat{OwnRevShare}$	0.006**	0.010***	-0.007***	0.005**
	(0.003)	(0.003)	(0.002)	(0.002)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,713	39,765	39,748	39,477
N. of municipalities	5,778	5,779	5,777	5,758
F stat.	407.393	409.814	409.122	424.964
Province-year fixed effects	X	X	X	X

	(5) Culture	(6) Sport	(7) Police	(8) Other exp.
$\widehat{OwnRevShare}$	0.001	0.006	0.008**	0.003
	(0.004)	(0.005)	(0.003)	(0.007)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	35,252	36,977	35,170	30,056
N. of municipalities	5,387	5,554	5,307	4,892
F stat.	374.456	475.097	569.444	389.153
Province-year fixed effects	X	X	X	X

The table shows the results of the second stage of Equation 3 where $OwnRevShare$ ranges from 0 to 100, with province-year fixed effects. The table shows logarithms of the following outcomes: expenditure on social protection, territory and environment, roads and transportation, instruction, culture, sport, policing, and other expenditure. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level. All regressions include province times year fixed effects.

Table A6: Second stage: effect of own revenue share on municipal budgets, interacted with the second mandate dummy

Panel A: Revenue				
	(1) Log total revenue	(2) Log non-IMU tax	(3) Debt	(4) Log other revenue
$\widehat{OwnRevShare}$	0.004***	0.010***	-0.003*	0.005**
	(0.001)	(0.004)	(0.002)	(0.002)
$\widehat{OwnRevShare \times SecondMandate}$	-0.001	0.003	0.001	-0.004***
	(0.001)	(0.003)	(0.001)	(0.001)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,026	39,026	36,011	39,026
N. of municipalities	5,779	5,779	5,384	5,779
F stat.	204.129	204.129	182.885	204.129

Panel B: Expenditure				
	(5) Log total expenditure	(6) Log service expenditure	(7) Log administration expenditure	(8) Log remuneration expenditure
$\widehat{OwnRevShare}$	0.004***	0.006***	0.004***	0.001
	(0.001)	(0.002)	(0.001)	(0.002)
$\widehat{OwnRevShare \times SecondMandate}$	-0.001**	-0.003***	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,026	39,023	39,026	39,026
N. of municipalities	5,779	5,779	5,779	5,779
F stat.	196.216	196.307	196.307	194.702

Panel C: Public Goods				
	(5) Nursery school	(6) Log n police officers	(7) Log waste collected (tons)	(8) Log n lights
$\widehat{OwnRevShare}$	-0.000	-0.000	-0.013	-0.002
	(0.001)	(0.002)	(0.014)	(0.002)
$\widehat{OwnRevShare \times SecondMandate}$	-0.002***	-0.000	-0.014	0.001
	(0.001)	(0.001)	(0.009)	(0.001)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
N. of observations	39,026	23,709	26,209	27,494
N. of municipalities	5,779	4,135	4,683	4,700
F stat.	204.129	181.285	121.706	197.361

This table shows the results of Equation 3 interacted with $SecondMandate$, where $OwnRevShare$ ranges from 0 to 100. $SecondMandate$ is a dummy equal to 1 if a mayor is in his second mandate (term), meaning he cannot go up for reelection again. *Panel A* shows the effect of a one percentage point increase in $OwnRevShare$ on the logarithm of following outcome variables: the total level of revenue, the tax revenue from all taxes but IMU, the level of debts and, finally, the other revenue. *Panel B* shows the results on the logarithm of following outcome variables: total expenditure, expenditure for services, the expenditure for administration and the remuneration of public officials. *Panel C* shows the results on a dummy taking value 1 whether there is a nursery school, the logarithm of local police officers, logarithm of the waste collected, the logarithm of the number of lights. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table A7: Robustness: effect of own revenue share on municipal revenue and expenditure, with and without controls

Panel A: Revenue				
	(1) Log total revenue	(2) Log total revenue	(3) Log non-IMU tax	(4) Log non-IMU tax
$\widehat{OwnRevShare}$	0.003***	0.004***	0.011***	0.011***
	(0.001)	(0.001)	(0.004)	(0.004)
Population	X	X	X	X
Other transfer cuts		X		X
N. of observations	39,921	39,773	39,921	39,773
N. of municipalities	5,781	5,779	5,781	5,779
F stat.	412.107	411.845	412.07	411.845

	(1) Debt	(2) Debt	(3) Log other revenue	(4) Log other revenue
$\widehat{OwnRevShare}$	-0.004**	-0.003	0.002	0.003
	(0.002)	(0.002)	(0.002)	(0.002)
Population	X	X	X	X
Other transfer cuts		X		X
N. of observations	36,801	36,669	39,921	39,773
N. of municipalities	5,386	5,384	5,781	5,779
F stat.	365.370	367.948	412.107	411.845

Panel B: Expenditure				
	(1) Log total expenditure	(2) Log total expenditure	(3) Log service expenditure	(4) Log service expenditure
$\widehat{OwnRevShare}$	0.004***	0.004***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Population	X	X	X	X
Other transfer cuts		X		X
N. of observations	39,921	39,773	39,921	39,773
N. of municipalities	5,781	5,779	5,781	5,779
F stat.	412.07	411.845	412.276	412.015

	(1) Log administration expenditure	(2) Log administration expenditure	(3) Log remuneration expenditure	(4) Log remuneration expenditure
$\widehat{OwnRevShare}$	0.004***	0.004***	0.001	0.001
	(0.001)	(0.001)	(0.002)	(0.002)
Population	X	X	X	X
Other transfer cuts		X		X
N. of observations	39,921	39,773	39,921	39,773
N. of municipalities	5,781	5,779	5,781	5,779
F stat.	412.268	412.003	408.922	408.481

This table shows the results of the second stage of Equation 3, where $OwnRevShare$ ranges from 0 to 100. *Panel A* shows the results on the logarithm of following outcome variables: total revenue, tax revenue from all taxes but IMU, the level of debts and other revenue. *Panel B* shows the results on the logarithm of following outcome variables: total expenditure, expenditure for services, expenditure for administration, and the remuneration of public officials. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table A8: Robustness: effect of own revenue share on public goods, with and without controls

	(1) Nursery school	(2) Nursery school	(3) Log n police officers	(4) Log n police officers
$\widehat{OwnRevShare}$	-0.000	-0.001	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.002)
Population	X	X	X	X
Other transfer cuts		X		X
N. of observations	39,921	39,773	24,279	24,181
N. of municipalities	5,781	5,779	4,145	4,143
F stat.	412.107	411.845	371.392	371.392

	(1) Log waste collected	(2) Log waste collected	(3) Log n lights	(4) Log n lights
$\widehat{OwnRevShare}$	-0.019	-0.019	-0.001	-0.001
	(0.014)	(0.014)	(0.002)	(0.002)
Population	X	X	X	X
Other transfer cuts		X		X
N. of observations	26,779	26,679	28,016	27,911
N. of municipalities	4,693	4,690	4,710	4,707
F stat.	227.407	236.406	363.149	401.297

This table shows the results of the second stage of Equation 3, where *OwnRevShare* ranges from 0 to 100. The table shows the results on a dummy taking value 1 whether there is a nursery school, the logarithm of the number of police officers, logarithm of the waste collected, the logarithm of the number of lights. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table A9: Second stage: effect of own revenue share on municipal revenue, interacted with local economic characteristics.

	(1) Log total revenue	(2) Log total revenue	(3) Log total revenue	(4) Log non-IMU tax	(5) Log non-IMU tax	(6) Log non-IMU tax
$\widehat{OwnRevShare}$	0.004***	0.004***	0.004***	0.011***	0.011***	0.011**
	(0.001)	(0.001)	(0.001)	(0.004)	(0.004)	(0.004)
$\times \widehat{HighFemaleUnempl.}$		0.002			-0.002	
		(0.001)			(0.003)	
$\times \widehat{HighCrowded}$			0.002***			0.000
			(0.001)			(0.002)
N. of observations	39,773	39,773	39,773	39,773	39,773	39,773
N. of municipalities	5,769	5,769	5,779	5,779	5,779	5,779
F stat.						

	(1) Debt	(2) Debt	(3) Debt	(4) Log other revenue	(5) Log other revenue	(6) Log other revenue
$\widehat{OwnRevShare}$	-0.003	-0.004**	-0.003*	0.003	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
$\times \widehat{HighFemaleUnempl.}$		0.006***			0.001	
		(0.001)			(0.001)	
$\times \widehat{HighCrowded}$			0.001			0.001
			(0.001)			(0.001)
N. of observations	36,669	36,669	36,669	39,773	39,773	39,773
N. of municipalities	5,384	5,384	5,384	5,779	5,779	5,779
F stat.						

This table shows the results of the second stage of Equation 3, where $OwnRevShare$ ranges from 0 to 100. The table shows the results on the logarithm of following outcome variables: total revenue, tax revenue from all taxes but IMU, the level of debts and other revenue. $HighFemaleUnempl$ is a dummy taking value 1 if the share of female unemployment is greater than the median. $HighCrowded$ is a dummy taking value 1 if the share of families in crowded conditions in 2011 is greater than the median. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table A10: Second stage: effect of own revenue share on municipal expenditure, interacted with local economic characteristics.

	(1) Log total expenditure	(2) Log total expenditure	(3) Log total expenditure	(4) Log service expenditure	(5) Log service expenditure	(6) Log service expenditure
$\widehat{OwnRevShare}$	0.004***	0.004***	0.004***	0.005***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
$\times \widehat{HighFemaleUnempl.}$		0.001*			0.002	
		(0.001)			(0.001)	
$\times \widehat{HighCrowded}$			0.001			0.001
			(0.001)			(0.001)
N. of observations	39,773	39,773	39,773	39,769	39,769	39,769
N. of municipalities	5,779	5,779	5,779	5,779	5,779	5,779
F stat.	409.663			409.829		

	(1) Log administration expenditure	(2) Log administration expenditure	(3) Log administration expenditure	(4) Log remuneration expenditure	(5) Log remuneration expenditure	(6) Log remuneration expenditure
$\widehat{OwnRevShare}$	0.004***	0.005***	0.004***	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
$\times \widehat{HighFemaleUnempl.}$		-0.002**			-0.001	
		(0.001)			(0.002)	
$\times \widehat{HighCrowded}$			-0.001*			-0.001
			(0.001)			(0.001)
N. of observations	39,770	39,770	39,770	39,672	39,672	39,672
N. of municipalities	5,779	5,779	5,779	5,773	5,773	5,773
F stat.	409.822			406.299		

This table shows the results of the second stage of Equation 3, where $OwnRevShare$ ranges from 0 to 100. The table shows the results on the logarithm of following outcome variables: total expenditure, expenditure for services, expenditure for administration, and the remuneration of public officials. $HighFemaleUnempl$ is a dummy taking value 1 if the share of female unemployment is greater than the median, $HighMaleUnempl$ is a dummy taking value 1 if the share of male unemployment in 2011 is greater than the median, $HighCrowded$ is a dummy taking value 1 if the share of families in crowded conditions in 2011 is greater than the median We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table A11: Second stage: effect of own revenue share on municipal public good provision, interacted with local economic characteristics.

	(1) Nursery School	(2) Nursery School	(3) Nursery School	(4) N. Police officers	(5) N. Police officers	(6) N. Police officers
$\widehat{OwnRevShare}$	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
$\times \widehat{HighFemaleUnempl.}$		0.003***			0.000	
		(0.001)			(0.001)	
$\times \widehat{HighCrowded}$			0.001			-0.001
			(0.001)			(0.001)
N. of observations						
N. of municipalities	5,779	5,779	5,779	4,143	4,143	4,143
F stat.	409.663			368.405		

	(1) Log Waste collected (tons)	(2) Log Waste collected (tons)	(3) Log Waste collected (tons)	(4) N. lights	(5) N. lights	(6) N. lights
$\widehat{OwnRevShare}$	-0.018	-0.022	-0.019	-0.002	-0.001	-0.001
	(0.014)	(0.014)	(0.014)	(0.002)	(0.002)	(0.002)
$\times \widehat{HighFemaleUnempl.}$		0.010			-0.002	
		(0.010)			(0.002)	
$\times \widehat{HighCrowded}$			0.005			-0.002**
			(0.010)			(0.001)
N. of observations	26,679	26,679	26,679	27,911	27,911	27,911
N. of municipalities	4,692	4,692	4,692	4,707	4,707	4,707
F stat.	235.894			397.562		

This table shows the results of the second stage of Equation 3, where *OwnRevShare* ranges from 0 to 100. The table shows the results on a dummy taking value 1 whether there is a nursery school, the logarithm of the number of police officers, logarithm of the waste collected, the logarithm of the number of lights. *HighUnempl.* is a dummy taking value 1 if the unemployment rate in the municipality is greater than the national median in 2011, *HighPoor* is a dummy taking value 1 if the share of families living in poor condition is greater than the median municipality in 2011. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts and a dummy taking value 1 if the municipality is subject to the DSP. Standard errors are clustered at municipality level.

Table A12: Robustness: effect of own revenue share on the budgetary behaviour of municipalities, with waste collection controls

Panel A: Revenue				
	(1) Tot. Rev.	(2) Other taxes	(3) Debt	(4) Other Rev.
$\widehat{OwnRevShare}$	0.006***	0.003	0.001	0.004
	(0.002)	(0.004)	(0.003)	(0.003)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
Waste collected	X	X	X	X
N. buildings	X	X	X	X
N. of observations	24,794	24,794	24,539	24,794
N. of municipalities	4,487	4,487	4,469	4,487
F stat.	197.919	197.919	194.788	197.919

Panel B: Expenditure				
	(5) Tot. Exp.	(6) Services	(7) Administration	(8) Remuneration
$\widehat{OwnRevShare}$	0.005***	0.007***	0.004***	0.003
	(0.001)	(0.002)	(0.001)	(0.003)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
Waste collected	X	X	X	X
N. buildings	X	X	X	X
N. of observations	24,794	24,791	24,792	24,743
N. of municipalities	4,487	4,487	4,487	4,482
F stat.	197.919	197.964	197.974	194.836

Panel C: Public Goods				
	(5) Nursery School	(6) N. Police officers	(7) Waste collected	(8) N. lights
$\widehat{OwnRevShare}$	-0.001	-0.000	-0.018	-0.001
	(0.001)	(0.002)	(0.014)	(0.002)
Population	X	X	X	X
Other transfer cuts	X	X	X	X
Subject to the DSP	X	X	X	X
Waste collected	X	X	X	X
N. buildings	X	X	X	X
N. of observations	39,773	24,181	26,679	27,911
N. of municipalities	5,779	4,143	4,690	4,707
F stat.	409.663	368.405	235.545	397.562

The table shows the results of the second stage of Equation 3 where *OwnRevShare* ranges from 0 to 100. *Panel A* shows the results on the logarithm of following outcome variables: total revenue, tax revenue from all taxes but IMU, the level of debts and other revenue. *Panel B* shows the results on the logarithm of following outcome variables: total expenditure, expenditure for services, expenditure for administration, and the remuneration of public officials. *Panel C* shows the results on a dummy taking value 1 whether there is a nursery school, the logarithm of the number of police officers, logarithm of the waste collected, the logarithm of the number of lights. We control for municipality and year fixed effects, log of population, logarithm of the level of other transfers cuts, a dummy taking value 1 if the municipality is subject to the DSP, the logarithm of the amount of waste collected and the number of buildings with waste collection. Standard errors are clustered at municipality level. All regressions include province times year fixed effects.