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## Temi di Discussione

(Working Papers)

Does gender matter for public spending? Empirical evidence  
from Italian municipalities

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Number

862





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# DOES GENDER MATTER FOR PUBLIC SPENDING? EMPIRICAL EVIDENCE FROM ITALIAN MUNICIPALITIES

by Massimiliano Rigon\* and Giulia M. Tanzi\*

## Abstract

This paper studies whether the allocation of municipal expenditure in Italy is influenced by female representation in Municipal Councils. Despite the existence of gender-specific preferences in society, we find no clear evidence that the amount of resources distributed among different spending categories is significantly affected by politicians' gender. The results are robust to a large variety of specifications and estimation techniques, where we also take into account the existence of an endogeneity problem. This is addressed using an instrumental variable approach, based on a temporary change in Italian law that reserved a gender quota in party lists for municipal elections, thus causing an exogenous increase in the number of women elected in Municipal Councils. The substantial absence of a gender bias is consistent with the median voter theorem, suggesting that politicians' preferences and personal characteristics do not matter in public choices. Alternatively, it may be that gender is not one of the determinants of politicians' voting behaviour, implying that the preferences of the women involved in political activities are close to those of their male colleagues.

**JEL Classification:** C23, C36, D78, H72, J16.

**Keywords:** gender, political representation, municipal expenditure, instrumental variable.

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## 1. Introduction<sup>1</sup>

Is public spending affected by “gender bias”? More explicitly, could different proportions of women and men in political institutions result in dissimilar expenditure allocation decisions? This question arises from observing that in several countries, both industrialized and less developed, women are underrepresented in political institutions. We wonder if this bias in political representation may have broader economic and social consequences, besides being a problem of equal opportunity in entering politics. In fact, women and men may have different priorities or preferences which could reflect the different roles played in society and within the family (Svaleryd, 2009; Croson and Gneezy, 2009; Funk and Gathmann, 2010). For example, women could be more interested in childcare and educational activities, because improvements in these services could allow them to reconcile their private and working lives better. In addition, women could pay more attention to the functioning of local transport services, since they seem to be more dependent on public transport. These gender differences in preferences may also be brought into political institutions, influencing the voting behaviour of politicians and, consequently, the allocation of resources across spending categories.

The empirical evidence provided so far on the existence of gender-specific decisions on public spending is mixed. The importance of politicians’ characteristics, gender included, in shaping policies is also disputed in the theoretical literature. The citizen candidate model states that elected representatives pursue their own preferred policies, since they cannot credibly commit themselves to implement policies that do not fulfil their preferences (Besley and Coate, 1997; Osborne and Slivinski, 1996; Alesina, 1988). If this is the case, all groups should be represented in elected assemblies for their interests to be taken into account, since politicians’ individual characteristics matter for public choices. Another view of politicians’ behaviour is provided by the median voter theorem (Downs, 1957), according to which politicians’ identity and their preferences should not impact on policy outcomes, because candidates’ choices would converge to catch the preferences of the median voter. According to this interpretation, gender should not affect politicians’ decisions.

We indirectly test the validity of these two alternative hypotheses by looking empirically for the existence of a gender effect within Italian municipal political institutions. More precisely, we analyze the relationship between the allocation of municipal public spending and the percentage of female politicians in Municipal Councils. In Italy municipalities are charged

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<sup>1</sup> The views expressed are the authors’ own and do not necessarily reflect those of the Bank of Italy. We thank Antonio Accetturo, Guglielmo Barone, Domenico Depalo, Luigi Infante, Fabiano Schivardi, Giovanni Vittorino, all participants at Bank of Italy and Cattolica University seminars, for their insightful comments. Usual disclaimers apply.

with the supply of most services at local level, such as the management of public utilities (local roads, water, sewage, garbage, etc) and the provision of transport, nursery schools, and assistance to elderly people. In their spending decisions municipalities enjoy a high degree of autonomy; it follows that local politicians play a crucial role in choosing which services to provide from among a large variety.

As far as we know, our paper is one of the first attempts to provide empirical evidence on the causal effect of gender on policy outcomes in Italy, where women are considerably underrepresented by comparison with the other industrialized countries, at both national and local government level. A previous work on Italy is Gagliarducci and Paserman (2009),<sup>2</sup> which focused on the gender of the mayor in Italian municipalities and only marginally addressed its effect on budget allocation. Differently from their work, we decided to focus on the Municipal Council since we believe that it plays a crucial role in the political decision-making process. First of all, the Municipal Council is the representative institution at municipal level that approves, by simple majority vote, all the budgetary decisions. In addition, we think that it is likely that councillors, on specific issues and regardless of their political affiliation, can organize pressure groups in order to affect the decisions of the mayor. In particular, women in the council may converge on issues to which they are sensitive and lobby the other municipal institutions. The centrality of the council survived the change in the electoral rules that was made at the beginning of the 1990s with the aim of increasing the power of the mayor.<sup>3</sup>

To answer our economic question, we run standard panel regressions covering the period 1998-2006 and around 8,100 Italian municipalities. These show that higher female participation (measured as the ratio of women to total seats) has a positive effect only on the share of expenditure for administration purposes. However, the estimated parameter is very small. No effects are found for the other categories of spending, including the environment, education, social assistance and transport. Accordingly, the categories of expenditure usually associated with female preferences, such as education and social assistance, are never influenced by politicians' gender. Other variables seem to matter in explaining expenditure allocation: politicians' age and education, the mayor's political affiliation, the demographic structure of the population and the level of municipal wealth.

In order to ensure robustness to our results, we estimated our regression modifying the definition of the dependent and independent variables, and the econometric strategy. As regard the independent variable, in one specification we restricted our attention to the

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<sup>2</sup> We are aware that Casarico and Profeta (2010) were working on a project about the relationship between the gender of the mayor and public expenditure allocation in Italian municipalities. However, the work is not available yet.

<sup>3</sup> With the new electoral rules the mayor is directly elected by the citizens and the winning coalition is granted a plurality bonus, which ensures governability.



women belonging to the mayor's coalition, to capture the real bargaining power of the women who sit in the council, and in another set of regressions we used the percentage of women in the Executive Committee. As an alternative definition of the dependent variable, in our regressions we considered only the fraction of public expenditure that can be most easily manipulated by politicians, to avoid the confounding effect due to pre-committed spending. Robustness checks related to the econometric technique involved the estimation of a fractional logit model, suitable when, as in our case, the dependent variable is a fraction between 0 and 1. Moreover, in another estimation we moved from the single year, as the unit of observation, to the entire political mandate and focused on the average values of expenditure allocated in the period, in order to remove distortions related to the electoral cycle. The results seem to be robust across all these different specifications, since the gender effect is weak and it is mainly associated with administration expenditure.

The statistical significance of the gender effect increases when we split the sample into two parts, according to the female representation. More precisely, municipalities with higher proportions of female politicians are associated with more public spending on administration and transportation, and with less on the environment. It follows that a stronger gender effect is found only when the female representation reaches a given threshold. The size of these coefficients is nonetheless still small, considered in terms of policy implications.

In the most recent literature scholars have identified the existence of omitted variables that could prevent us from correctly capturing the causal relationship between gender and spending decisions. In fact, municipalities where a higher number of women is elected may be different for social, economic and cultural features from those where the female share is low. While some possible differences can be controlled for, there are some voters preferences and values which are not observable. Such unobservable aspects may affect not only the composition of the Municipal Councils but also the allocation of public spending. For example, people living in certain municipalities may attribute great importance to the value of equality. This can affect the preferred expenditure allocation in the sense that resources have to be used to reduce population disparities. Moreover, it can also affect the gender composition of the municipal institutions, since citizens may prefer a more equal proportion of female and male representatives. Differently from the recent literature, which uses Regression Discontinuity Design (RDD) to solve the endogeneity problem, we exploit a change in Italian law that occurred between April 1993 and September 1995. This law reserved a gender quota in parties' lists for municipal elections, which worked as a lower bound for the percentage of female candidates, owing to the traditionally low number of women in the electoral lists. However, not all the Italian municipalities voted under the gender quota regime because of the short period during which the law was in force and the

differences in election calendars. As shown by De Paola et al. (2010), the law produced a persistent and exogenous increase in female politicians in the municipalities where an election was held in the years in which the law was in force. Therefore, the ultimate effect of the quota regime was to split Italian municipalities between those treated and those not treated by the law. Our empirical strategy consists in instrumenting the percentage of women elected in the municipality with a dummy variable, which distinguishes between those treated and those not treated. The instrument is exogenous with respect to the unobservable municipal preferences, because the treatment was totally random, depending only on the election calendar. Moreover, as measured in De Paola et al. (2010), the instrument is relevant since the treatment had significant effects on the number of women elected, even after the abolishment of the gender quota regime. This allow us to estimate the causal relationship between councils' gender composition and spending decisions correctly, by separating the effects on expenditure due to politicians' gender from those related to unobservable preferences. The results of the instrumental variable (IV) regressions strengthen our previous results: the gender effect completely disappears, showing that the composition of Municipal Councils has no influence at all on the expenditure allocation of Italian municipalities.

The absence of a gender effect can be explained in different ways. On the one hand, our results can be interpreted as providing support for the median voter theorem, since politicians' characteristics do not seem to matter for policy making. On the other hand, it could also be that politicians still vote according to their own preferences, but that gender is not a determinant of their voting behaviour. Women involved in political activities may have preferences that are closer to those of men than are those of women not involved. Finally, it is worth noting that our results may be driven by a threshold effect. In other words, policy changes in term of financial choices driven by politicians' gender may occur only when the percentages of women elected exceed a large value.

The remaining part of the paper is structured as follow. Section 2 briefly reviews the main results of the literature, while Section 3 describes the data and provides some descriptive statistics. The basic econometric specification and the first results are set out in Section 4. In Section 5 we discuss different specifications of the estimated equation. Section 6 introduces our instrumental variable and presents the results obtained when we control for possible endogeneity. Section 7 concludes.

## **2. Literature review**

In recent years several works have empirically addressed the relationship between politicians' gender and policy outcomes. So far, the evidence provided is mixed. The differences may be

due in part to the fact that these analyses cover both developing and developed countries, which differ for many economic, social and cultural aspects. Moreover, they focus on different levels of government (municipal and regional) and on different institutions (the mayor and representative bodies). In this section we briefly summarize the main findings on the role of gender in policy decisions.

Besley and Case (2003) show that female politicians in US legislative bodies apply pressure to increase spending on family assistance and to strengthen child support provision. Ferreira and Gyourko (2009), using data on female mayors in the US, provide evidence that gender has no effect on the size or composition of local public spending. To deal with the endogeneity of female participation in relation to municipal preferences and characteristics, they use the RDD approach. Basically, they compare short and long-run outcomes across elections in which a female candidate barely wins against a male candidate to those in which the woman barely loses to a male candidate. Rehavi (2007), using a RDD inspired instrumental variable approach, finds that a rise in the number of female legislators in the US modestly increases health expenditure. He uses the number of women in legislatures that result from very close elections involving one male and one female candidate as a proxy for the overall number of women in legislatures in any particular year.

Moving to Northern European countries, Svaleryd (2009) analyzes the allocation of spending in Swedish municipalities, showing that higher shares of women in local councils increase education and childcare spending to the detriment of elderly care. Halse (2009), using Norwegian municipalities, finds a relationship between the gender of the politicians and the budget share devoted to childcare, but the estimated effects are very small. To avoid spurious correlations, the author instruments the share of women elected, using the fact that some Norwegian parties have imposed, in different years, quota rules to achieve higher shares of women on election lists. However, as the author notes, the instrument appeared too weak to produce reliable results to comment.

As regards other European countries, Funk and Gathmann (2010), considering data on voting in federal ballots in Switzerland, show that women and men have different preferences with respect to public goods. Moreover, they find that the gender greatly affects the composition of government expenditures. In particular, in the formation of the budget women favour spending on the environment more than agricultural and military spending. Campa (2011) analyzes the effects of gender quotas on the election of female politicians in Spain, finding that the size and composition of local government expenditures are not influenced by the number of women elected.

Chattopadhyay and Duflo (2004) study the causal effect of female policy-makers in India through a randomized policy experiment. The reservation of one-third of seats for women imposed by law affects policy decisions in ways that seem to reflect women's preferences for the provision of better roads and drinking water. Clots-Figueras (2009), also focusing on India, finds that a higher proportion of female politicians increases the educational levels of the persons who live in the districts where these politicians are elected.

Similar to Ferreira and Gyourko (2009), but looking at Italian municipalities, Gagliarducci and Paserman (2009) apply RDD analysis. They find that the gender of the mayor affects the duration of the governments in Italian municipalities, but not the per capita levels of the budget deficit, revenue or investment. Moreover, they show that the shares of expenditure on education, welfare and security are not shaped by the gender of the mayor. Our paper contributes to this literature by providing new and more detailed evidence on the gender effect in Italy.

### 3. Data sets and descriptive statistics

To build our dataset we rely on two main sources of information: the first reports data on politicians elected in municipal councils, while the second collects municipal balance sheets.

Data on politicians who sit on Municipal Councils has been collected by the Ministry of the Interior since 1985. In particular, the database contains information on politicians' gender, age, education level and party affiliation. The members of the councils are directly elected every 5 years.<sup>4</sup> Since in Italy there exists the so-called "preference vote", voters can show their preference for a female or male politician directly by voting for that candidate.

The dataset reveals that women are considerably underrepresented. Although the female participation in municipal councils, measured as the ratio of the number of women to total seats,<sup>5</sup> has been increasing, it had only reached 18 per cent in 2008 (Figure 1). A large rise (around 8 percentage points) occurred between 1993 and 1995, when the gender quota law was implemented. Female underrepresentation is also present in the Executive Committee (where female participation rose from 13 per cent in 1998 to 16 per cent in 2008) and among mayors (where the proportion of females rose from 3 to 10 per cent in the same years).

We also observe an increase over time in the variability across municipalities of the percentage of women in councils (Figure 2). In fact, at the end of the 1980s more than 75 per cent of municipalities had less than 10 per cent of women in their councils, while only 2

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<sup>4</sup> With the exception of the period 1993-1998, when the duration of the electoral mandate was 4 years.

<sup>5</sup> The total number of seats varies from 12 to 60, according to the population of the municipality.

per cent had at least 20 per cent. In 2008 the concentration in the left part of the distribution is significantly lower: only 26 per cent of municipalities had less than 10 per cent of female politicians, while the number with at least 20 per cent had increased to 40 per cent.

Our data also reveal large differences in female participation across municipalities: the share of women is higher in small cities (Figure 3) and in those located in the North and the Centre of Italy (Figure 4).

On average, female politicians sitting in councils appear to be better educated and younger than their male colleagues. In fact, women politicians in 2008 had spent around 13 years in education, one more than men, and their average age was 43 years, five less than men. These gaps have remained almost constant over time (Figures 5 and 6).

Municipal balance sheets, collected by the Ministry of the Interior since 1998 and published by the Italian Institute of Statistics (Istat), contain data on current and capital expenditure. In our work we consider both total expenditure (the sum of capital and current expenditure) and the two categories separately. In fact, they are different in their scopes and consequently can be differently affected by politicians' gender. Current spending is used to provide services and for redistributive purposes, and it ensures the regular functioning of the municipality. Instead, capital spending includes direct and indirect investment, capital contributions and loans; it usually concerns the purchase of real property and durable goods. Between 1998 and 2007 capital spending was equal to about 10 per cent of total spending, while the remaining 90 per cent was used for current expenditure. Around 40 per cent of the latter consisted of staff costs, and another 40 cent of purchases of goods and services. The last 20 per cent consisted of transfers and financial operations.

Considering spending categories, in the sample period almost 40 per cent of total resources covered administration costs. Environmental, transport and education expenditure accounted for, respectively, 19, 11 and 10 per cent. Furthermore, social assistance spending, which includes also child and elderly care, accounted for 8 per cent (Figure 7). Finally, a variety of other functions (justice, police, culture, sports, tourism and economic activities) account for the remaining 12 per cent.<sup>6</sup> Over the period, we identify a decreasing trend for the financial resources devoted to education and the environment, offset by a rising trend for administration and social assistance costs. Moreover, there is considerable variability across municipalities in terms of the shares of financial resources devoted to each category, as shown by the standard deviations reported in Table 1.

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<sup>6</sup> The allocation of financial resources among different categories differ for current and capital spending. In the latter, administration spending represents, on average, only the 26,5 per cent, while environment and transport expenditure account for consistent percentages (20,7 and 26,3 per cent respectively).

Our sample covers around 7,500 Italian municipalities, out of around 8,100. Some 72 per cent of municipalities belong to the smallest size class (less than 5,000 inhabitants), 20 per cent have between 5,000 and 15,000 inhabitants and 8 per cent have more than 15,000 inhabitants. As regard location, 52 per cent are in the North of the country, 22 per cent in the Centre and 25 per cent in the South.

#### 4. Empirical strategy and first results

Before empirically addressing the role of gender in political decisions, we first look at the existence of different male and female preferences. In fact, if there are no differences, there is no reason to assume that gender could be important in affecting the allocation of municipal spending. The existence of gender-specific preferences is illustrated in several works, such as Svaleryd (2009), Croson and Gneezy (2009) and Funk and Gathmann (2010). To have further evidence, focused on the Italian context, we perform an additional analysis considering the Italian Households Multiscope Survey, which refers to about 19,000 people interviewed in 2010 and contains some questions useful for our purposes. In particular, people interviewed are asked to express their opinion on what they consider the main problems in Italy. The results show that male and female preferences differ in a systematic way. More precisely, as shown in Table 3, the share of positive answers (meaning that the issue is a priority for the country) is statistically higher for women as concerns unemployment, crime, health services, the education system, immigration and poverty. By contrast, the percentage of men who consider tax evasion, the public debt and justice as critical issues needing government action is statistically higher. These results seem to confirm the role of gender in identifying priorities on public issues. Transferring these differences to the municipal context, we would expect female politicians to be more in favour of financing education and social assistance spending.

We now estimate municipal level regressions covering the period 1998-2006, to find out whether and how the gender of politicians drives municipal spending patterns. The assumed specification is the following:

$$Y_{it} = \beta_1 + \beta_2 * WR_{it} + \beta_3 * COUNC_{it} + \beta_4 * MUNIC_{it} + \lambda_t + \epsilon_{it}$$

where the index  $i$  refers to the municipality and index  $t$  to the year. Our dependent variable is the share of expenditure allocated to each category (administration, education, transport, the environment and social assistance) in relation to the total amount of spending. To capture the gender effect on public spending, we consider the ratio of women to the total

membership of the Municipal Council (WR), which is intended to proxy women's bargaining power in influencing spending decisions, since decisions are taken by simple majority.

To ensure the correct identification of the relationship, we control for the characteristics of politicians (COUNC) likely to influence their preferences. The regressors include the gender of the mayor (dummy variable equal to 1 if the mayor is female), the average age and education of the politicians, and the incumbent party (dummy variables for left, right, centre and civic lists). Moreover, since municipal spending can vary significantly according to the timing of the electoral cycle, we control for the number of months to the next election. The other set of controls (MUNIC) is related to municipal characteristics, and includes time-invariant variables, such as the location of the municipality (dummies equal to 1 if the municipality is located close to mountains or close to the sea) and its size (km<sup>2</sup>), and time-variant regressors, such as the population, the per capita number of crimes registered, the voter turnout in municipal elections, the GDP of the province in which the municipality is located, the ratio of babies, the school population and old people to the total population. Most of these variables have a clear impact on spending needs. For example, the demographic structure can explain expenditure on childcare, education and care of the elderly. The location of the municipality can drive the choices of councils as regards infrastructures and tourism spending, while the per capita number of crimes influences police expenditures and security measures. With the voter turnout we aim to proxy the level of social capital and with GDP we control for municipal wealth, which can obviously affect the spending structure. The number of inhabitants is introduced in order to take into account some crucial differences across municipalities in terms of fiscal and electoral rules that may affect spending choices: the Internal Stability Pact and the dual ballot system for the election of the mayor apply only to those municipalities with a population above a given threshold.

Controlling for municipal characteristics is also fundamental in order to reduce the estimation bias due to the existence of citizens' unobservable preferences, which can be correlated with observable characteristics at municipal level. Finally, we insert provincial dummies that should take into account fixed characteristics at provincial level, and year dummies ( $\lambda_t$ ) that capture the effects on the allocation of expenditure of all those institutional and economic changes that concern the universality of municipalities. Standard errors are made robust to heteroskedasticity and are clustered at the municipal level.

We estimated the model with the random effect. In fact, the standard test which discriminates between the random and fixed effects does not show significant differences between the two estimators. However, it should be remembered that we have introduced time invariant covariates at municipal level and provincial dummies that already take fixed

effects into account. Since the test reveals that there is no significant municipal fixed effect, the random effect option is preferable since it is more efficient.

In the first set of regressions we only include the controls for politicians' characteristics, while in a second step we add all the municipal controls. The results of the first step (Tables 4, 5 and 6) show that the higher the proportion of female councillors, the higher is the share of total expenditure on administration and transport, and the lower that on the environment (Table 4). The results are similar when we consider current expenditure (Table 5). However, the significant parameters are very small, implying an almost negligible effect of the gender variable. For example, an increase in the proportion of women of one percentage point changes the ratio of expenditure devoted to a certain category by around 0.01 per cent. It is worth noting that the spending categories usually associated with female preferences, such as education and social assistance, are never influenced by the gender of the politicians. When we focus on capital expenditure (Table 6), it seems that a different gender composition of the council in terms does not affect the allocation of spending.

When we include all municipal level controls (Table 7 for total spending), the estimated parameters related to the percentage of female policy-makers are never statistically different from zero, except for administration expenditure, which is positively influenced by the number of women. When we focus on current expenditure, spending on transport and the environment are also influenced by the proportion of female councillors, positively and negatively respectively (Table 8). In general, in the more complete specification, the gender effect is even smaller, in terms of both the number of categories of spending affected and the size of the estimation parameters.

As concerns other regressors, we note that the gender of the mayor is not significant (or weakly significant for some categories of current expenditure), moving out the hypothesis that the allocation of public spending could be driven by the gender of mayors, whose role is often considered crucial in shaping voting behaviour. The null hypothesis of the joint significance of the coefficients related to the proportion of women and the gender of the mayor is also rejected, except for administration spending. This result reinforces our finding that in general gender seems to be of little importance for policymakers' decisions. By contrast, the demographic structure of the population shows a greater explanatory power. In fact, as expected, higher percentages of children and the school population increase the proportion of spending on education. Some councillors' characteristics also matter for public spending, although the estimated coefficients are small: increasing their average education and age boosts spending on education, social assistance and the environment, while it reduces administration and transport expenditure. Many time invariant characteristics at



municipal level seem to be significant in explaining different allocations of spending (location and fixed provincial effects).

Finally, we considered two sub-sample regressions based on municipal population, in order to better take into account differences in the spending determinants among municipalities of different size. More precisely, we split the sample using the cut-off points of 5,000 and 15,000 inhabitants, where changes occur in the fiscal and electoral rules followed by the municipalities. The results are the same as those found in the baseline specification.

## **5. Alternative specifications of the estimated equation**

In this section we consider an extensive set of robustness checks in order to strengthen the validity of our results. These checks involve the definition of our variable of interest, the definition of the dependent variable and the estimation strategy.

As regards the first group of controls, we consider the fraction of women belonging to the majority coalition. So far, we have used the total number of female politicians as a proxy of their bargaining power in the council, assuming that there could be a bias driven exclusively by politicians' gender, regardless of their affiliation with the winning coalition. However, it is also possible that only women belonging to the majority political coalition play an effective role in affecting spending decisions. These new regressions confirm the earlier results, showing a small gender bias in favour of administration total expenditure (Table 10). In another regression (not shown), we introduce an additional term, the interaction between the proportion of women belonging to the winning coalition and the mayor's political orientation. This allows us to understand whether the gender bias could depend on the mayor's political orientation. The coefficients of the interaction terms are not statistically different from zero.

As a further control regarding the specification of our independent variable, we move from the council to the Executive Committee. In fact, it is plausible to imagine that the gender bias will emerge more in this institution, since it proposes the political actions that are then approved by the council. We therefore run similar regressions having as variable of interest the percentage of women in the Executive Committee. In these estimates there is a complete absence of gender bias for the allocation of total spending (Table 11).

In another set of regressions we investigate whether the relationship between female representation and political choices is not linear. In fact, it is possible that the role of women becomes important in terms of bargaining power only when their proportion reaches a given threshold. In order to take this into account, we identify three different thresholds that

coincide with the first quartile, the median and the third quartile of the female participation distribution (respectively equal to 8, 15 and 23 per cent of women in relation to the total number of seats). For each of these thresholds we introduce a dummy variable into the regression, with a value of 1 when the proportion of women exceeds the threshold. These dummies are used in place of the percentage of women in the council. Our findings show that the gender effect exists only when the highest threshold is passed. In other words, moving from below to above the 3<sup>rd</sup> quartile in terms of female participation increases administration and transport total expenditure, while it decreases spending on the environment (Table 14). Although the coefficients are more significant than in the baseline specification, they remain small. On the contrary, we do not find a significant effect for the other dummy variables associated with the lower thresholds (Tables 12 and 13). This means that higher percentages of women in political institutions are required to influence financial choices. Although the introduction of gender quota rules helped to increase the number of female politicians, only a small fraction of municipalities show sufficiently large shares of women. Small increases in the number of elected women would not be enough to bring about policy changes, which probably require larger changes in female participation.

The second group of controls refers to the definition of our dependent variable. Some municipal current expenditure can be pre-committed, meaning that the members of the council do not really take decisions on certain types of expenditure. For example, spending on staff cannot be substantially modified, and is almost fixed over time. Other pre-committed categories of expenditure include transfers, tax payments and amortization. We therefore removed these categories from current expenditure, but the results (not shown) in terms of gender effect do not change from those of our baseline specification.

As additional controls, we changed the estimation strategies in two different ways. First, we estimated a fractional logit model, which is more suitable when the dependent variable is a proportion (as in our case, the fraction of expenditure devoted to a certain category) and, by construction, limited between zero and one. The results do not differ from the baseline specification, in terms of either the significance or the size of the estimated coefficients: only administration expenditure is positively and scarcely affected by female representation. Second, the amount and allocation of public expenditure, and in particular of capital expenditure, may vary significantly over time according to the electoral cycle, depending, for instance, on whether financial decisions are taken at the beginning or the end of the electoral mandate. We therefore considered as the unit of the analysis not the single year, but the entire mandate, focusing on the average values of expenditure allocated in the period. Furthermore, to avoid distortions related to the timing of electoral cycles, we consider only those mandates that are complete (5 years). Since our sample spans the period from 1998 to

2006, we have only one observation for each municipality. However, in some cases we have premature ends of the mandate due to political crises. This, along with some missing observations, reduces the size of our sample to around 5,500 units. Estimating a cross-section regression is interesting because it emphasizes the cross-municipality variability of the allocation of spending. We expect that the coefficient associated with the proportion of women could be larger since there is greater variability across municipalities than over time, both in the allocation of expenditure and in the number of female councillors. As expected, the significant coefficients are slightly higher than those found in the baseline specification and they support the positive relationship between total administrative spending and the percentage of female politicians (Table 15). Surprisingly, we also find that a larger representation of women lowers social assistance expenditure, a category of spending typically associated with female preferences.

Table 16 summarizes all the robustness checks and the results obtained so far. We display the signs and degrees of significance of the estimated coefficients for the female ratio regressor. Most of the results are similar for the different specifications. Female politicians play a role in increasing administration and transport expenditure, and in decreasing spending on the environment and social assistance. However, the coefficients are small, implying that the gender effect plays a minority role. Education spending is never affected by the gender of the politicians.

## **6. Instrumental variable estimates**

Although several control variables related to social, cultural, geographic and economic characteristics were introduced into the panel regressions, there still may be some unobservable differences among municipalities in terms of citizens' preferences and values which can affect expenditure choices. These preferences can also influence the voting behaviour of citizens when choosing among candidates of different gender in elections. This constitutes a clear problem of omitted variables: the unobserved preferences influence both the dependent variable and the independent variable, preventing the correct identification of the causal relationship we are interested in. We do not have a clear idea of the direction of the bias generated by these omitted controls for citizens' preferences. This is due to the complexity of the set of preferences we are not able to observe, which can influence different categories of spending in opposite ways.

As mentioned, the endogeneity problem has recently been addressed with the RDD approach, but this is not applicable in our setting.<sup>7</sup> We propose a different estimation strategy which exploits a temporary change in Italian law.<sup>8</sup> Law 81/1993 introduced some important changes in the local electoral system, such as the direct election of mayors and the presidents of the provinces. More importantly for our purpose, it established that neither sex could be more than two thirds of a party's list of candidates for municipal elections. In municipalities with up to 15,000 inhabitants, the maximum quota was set at three quarters. However, in September 1995, Sentence no. 422 of the Constitutional Court repealed the section of the law containing the gender quota, because of the right of equal access to elective offices protected in the Italian Constitution.

This law worked as a lower bound for the percentage of female candidates, due to the traditionally low number of women in the lists. As shown in De Paola et al. (2010), with a difference-in-differences estimation strategy, the reservation of candidacies for women translated into a higher number of elected women.<sup>9</sup> Moreover, they find the effects of the law lasted for some years after its repeal. However, because of the short period during which the law was in force and the differences in election calendars, not all municipalities voted under this regime and experienced such an increase in the share of female politicians. The change in the law therefore split municipalities into two groups, treated and not treated by the law, that represent respectively 95 and 5 per cent of the sample. The treated municipalities saw a change in female participation due not to endogenous citizens' preference but to the exogenous change imposed by the law. This allows us to use the split produced by the law to instrument the percentage of women elected in each municipality. More precisely, our instrument is a dummy variable equal to 1 if the municipality voted during the period of validity of the gender quota, and 0 otherwise. We limit our instrumental variable regressions to the period 1998-2003. In fact, computing the standard test on the relevance of the instrument for a more extended period, the instrument becomes weak. The effects of the law on the number of elected women decrease steadily after its repeal and seem to end in 2004, when the majority of municipalities held a new election. This instrument satisfies the two conditions for the choice of the instrument: exogeneity and relevance. First of all, having voted or not during the gender quota period is completely

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<sup>7</sup> The regression-discontinuity design uses a cut-off selection method. The sample is cut in two, with one group serving as a control group and the other as the treatment group. In the gender literature, municipalities are split into two groups according to the gender of the mayor elected. Considering only those municipalities in which one candidate barely wins against another of the other sex, it is reasonable to assume that the gender of the mayor elected is random, not driven by specific unobservable peculiarities of the municipality.

<sup>8</sup> As a first step the endogeneity problem can be solved using a fixed effect, since it is reasonable to expect cultural characteristics and preferences to be mainly time invariant. Since the Hausman test we performed did not show any relevant differences between the random and fixed effect estimations, we are already taking these unobservable preferences into account in our standard random effect regressions. However, we believe that unobserved preferences may vary over time, so that they are not completely captured just by adding a municipal fixed effect.

<sup>9</sup> A theoretical explanation of this effect is also presented in Bonomi, Brosio and Di Tommaso (2009).

random, since it depends only on the election calendar, which ensures that the instrument is exogenous.<sup>10</sup> Second, the relevance of the instrument has been empirically tested in De Paola et al. (2010). In Table 17 we show the first stage of the IV estimation.

Since the instrumental variable regressions will cover a shorter period, we run the standard OLS regressions considering the period 1998-2003 to check the existence of any differences with respect to the full period regressions previously considered (1998-2006). For total expenditure, the results are exactly the same in terms of the size and significance of the estimated parameters, with the sole exception of environmental spending, which turns out to be negatively, but weakly, affected by the number of female politicians. No substantial differences are found in the regressions that consider on capital spending, while the coefficients of the female ratio lose statistical significance with respect to the full period when considering current administration and transport spending (Table 18).

In the instrumental variable set of regressions, the effect of the different gender composition in municipal councils completely disappears. The estimated coefficients of the female ratio are never statistically different from zero, both considering total spending and separating capital from current spending (Tables 19, 20 and 21). The demographic structure and municipal characteristics seem to be the real drivers of expenditure decisions. The politicians' characteristics become less important with respect to the standard panel regression results, excepted for the average level of education.

Finally, we also tried to extend the instrumental variable approach to the regressions where threshold dummies were used as a proxy of gender bargaining power. In fact, these regressions showed a stronger gender effect. Unfortunately, in this case we cannot solve the endogeneity problem since our instrument turns out to be weak.

## **7. Conclusions.**

In this work we study the existence of a gender effect in municipal spending decisions. We run both panel regressions at municipal level and instrumental variable estimations to correct for possible problems of endogeneity. The results show that the gender of politicians does not significantly matter when looking at the allocation of expenditure in Italian municipalities. In particular, spending categories typically associated with female preferences, such as childcare and education, do not benefit from a greater representation of women in municipal councils.

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<sup>10</sup> To be sure of the exogeneity of our instrument, we checked for the existence of strategic conduct by local political parties which could have caused a political crisis in order to vote with the new electoral rules. Empirical evidence shows that there are no significant differences in the share of earlier endings of political mandates in the period 1993-1994.

The results may be driven by the fact that the proportion of women in municipal councils is usually small and it is possible that the gender effect we are looking for requires a higher female representation. In other words, women's representation may need to reach a certain critical level to matter for the decision-making process. In fact, the group of municipalities with a share of female politicians above this threshold shows a significantly different allocation of public spending. However, also in this case the gender effect is small in terms of policy implications. Non-linearity in the gender effect suggests that the introduction of gender quotas in Italy helped to increase female participation, but not enough to have an impact on the allocation of financial resources.

Taking the above into account, the absence of gender bias seems to support the median voter theorem, to the effect that only citizens' preferences matter for policy making, and not those of politicians. However, an alternative explanation could be that politicians still vote according to their own preferences, but that gender is not a determinant of their voting behaviour. A possible interpretation of such behaviour is that women involved in political activities could spontaneously move their preferences closer towards those of men, by comparison with women not involved in such activities.

In any case, our results should not be interpreted in the sense that the problem of female underrepresentation in political institutions is irrelevant. In fact, there remain the problems of women having equal opportunities to enter politics and of their being adequately represented in institutions, mainly because Italy is one of the developed countries with a very low rate of female participation in politics. Moreover, female politicians could impact on political choices in a number of ways not considered in this analysis, for example by improving the political decision-making process or promoting the adoption of best practices.

## Figures and Tables

Figure 1

Percentages of female mayors and women in municipal councils

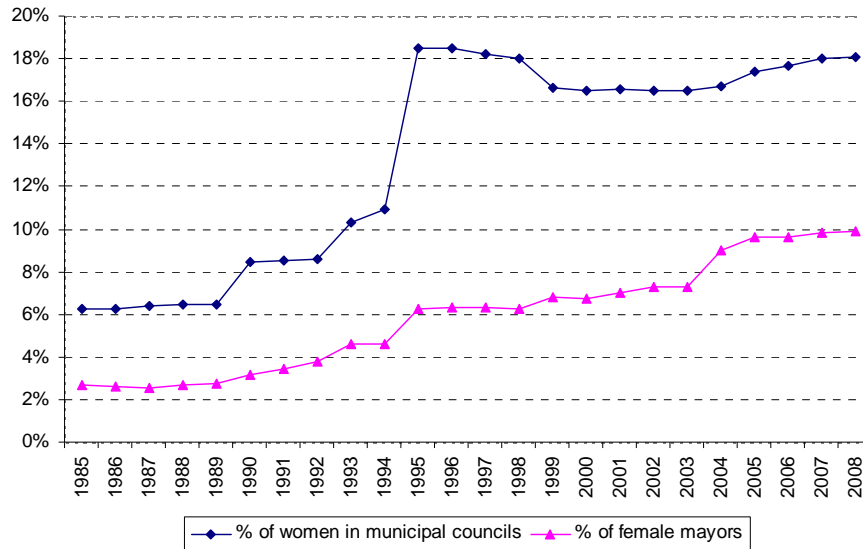


Figure 2

Distribution, by year, of the percentages of female councillors

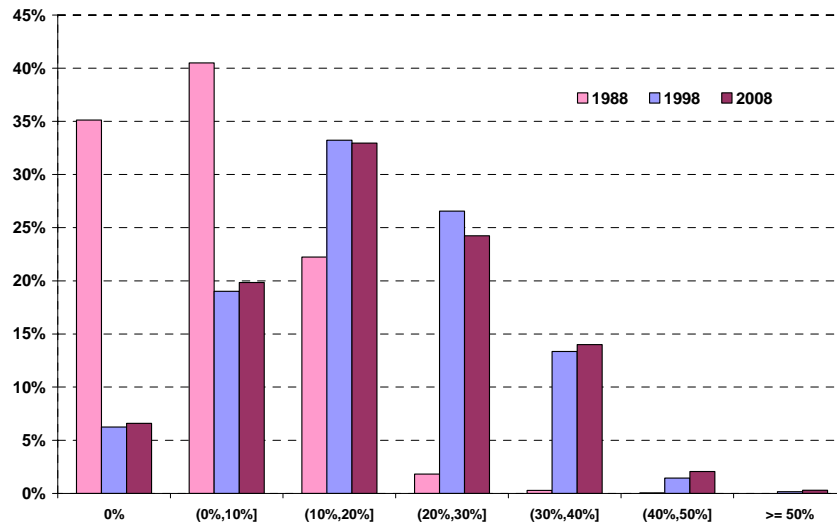


Figure 3

Average proportion of female councillors, by size of municipality

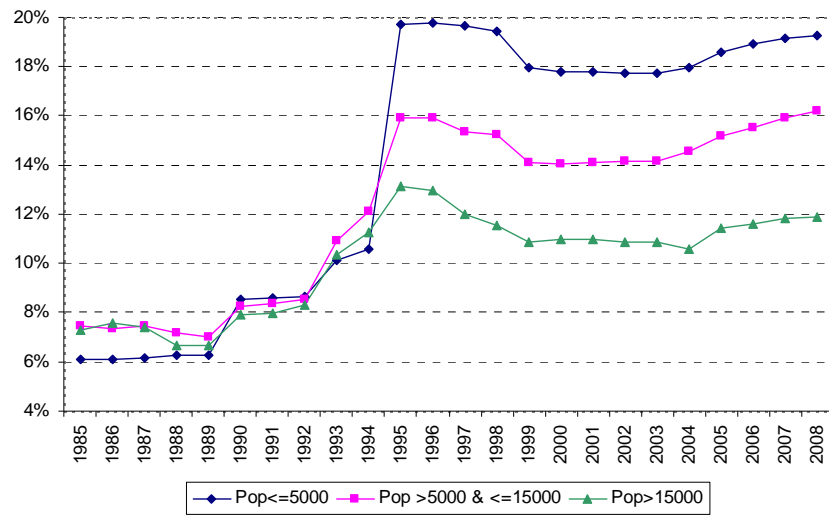


Figure 4

Average ratios of women in the Councils, by location

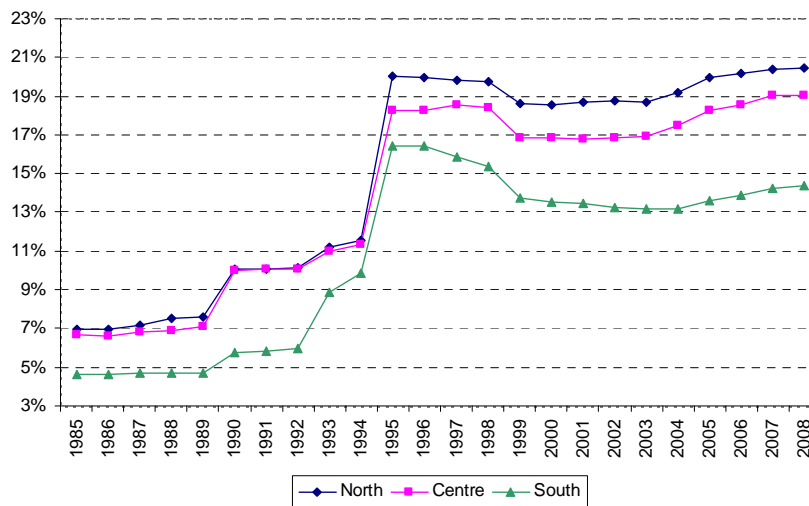




Figure 5

Average years of education of local politicians, by gender

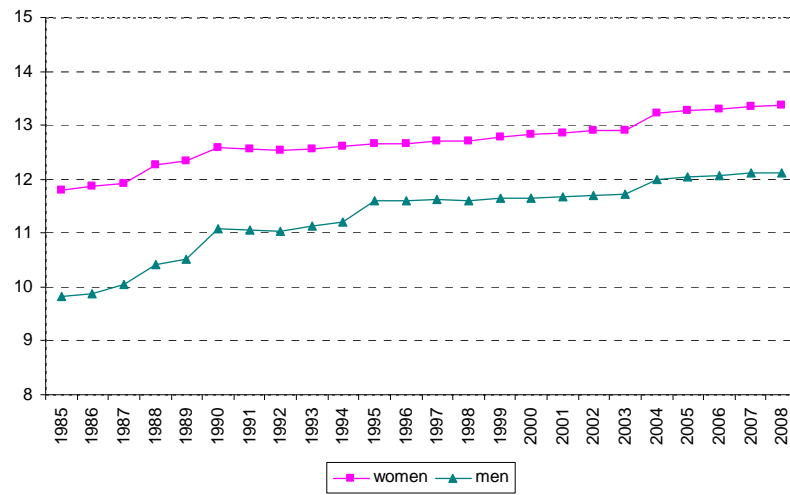
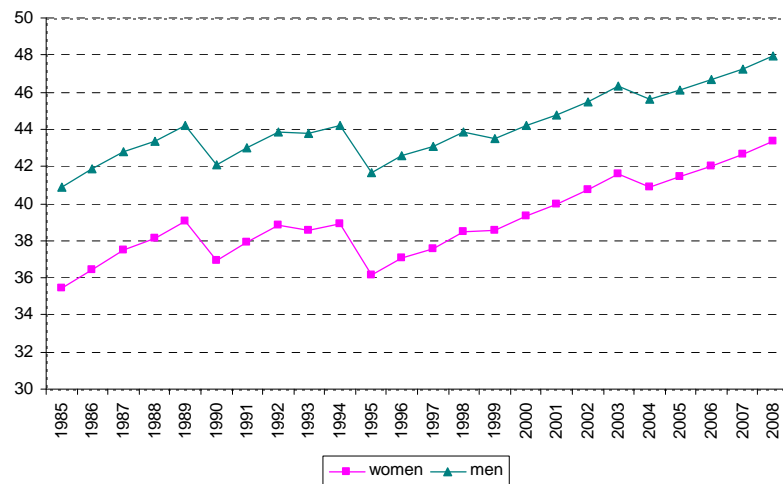


Figure 6

Average age of local politicians, by gender



**Figure 7**  
**Composition of public expenditure**

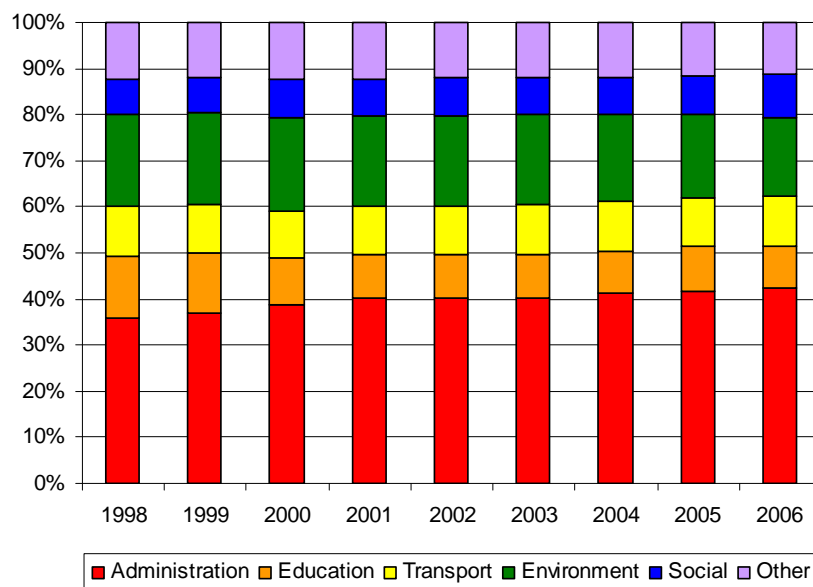


Table 1

Descriptive statistics of the variables included in the dataset in the period 1998-2006

	Obs.	Mean	SD
<b>Municipal councils</b>			
Proportion of female councillors	62936	0.169	0.104
Proportion of female mayors	62936	0.079	0.269
Proportion of femal councillors with the mayor's political orientation	62936	0.136	0.106
Politicians' age	62936	44.350	3.978
Politicians' education in terms of years	62875	12.032	1.541
<b>Municipalities</b>			
Size of the municipality in km <sup>2</sup>	62957	37.035	49.829
Population of the municipality	62936	7141. 2	41248.2
Proportion of people under 6 years of age	62936	0.052	0.013
Proportion of people under 15 years of age	62936	0.082	0.020
Proportion of people over 65 years of age	62936	0.212	0.064
Number of crimes per capita	62306	0.041	0.016
Voter turnout in municipal elections	59787	0.794	0.089
GDP per capita at provincial level	62674	19628.4	5151.6
<b>Allocation of resources</b>			
Proportion of expenditure spent on administration	62936	0.396	0.17
Proportion of expenditure spent on the environment	62936	0.193	0.091
Proportion of expenditure spent on transport	62936	0.107	0.006
Proportion of expenditure spent on education	62936	0.103	0.057
Proportion of expenditure spent on social services	62936	0.068	0.069

**Table 2**

**Correlations between the proportion of female councillors and the other regressors**

	Proportion of female councillors
Proportion of female councillors	1
Gender of the mayor	0.19
Politicians' education	-0.09
Politicians' age	-0.12
Proportion of people under 6 years of age	-0.17
Proportion of people under 15 years of age	-0.25
Proportion of people over 65 years of age	0.09
GDP per capita at provincial level	0.23
Population of the municipality	-0.06
Voter turnout in municipal elections	0.14
Number of crimes per capita	-0.01
Size of the municipality	-0.15

Table 3

## Italian Households Multiscope Survey 2010

Which is the main problem in Italy?	Values	% of positive answers among men	% of positive answers among women	P-value
Unemployment	1=yes; 0=no	62.6	65.9	0.0000
Crime	1=yes; 0=no	46.3	49.6	0.0000
Tax evasion	1=yes; 0=no	19.8	14.9	0.0000
Environment	1=yes; 0=no	10.9	11.3	0.2019
Public debt	1=yes; 0=no	12.0	8.5	0.0000
Health system	1=yes; 0=no	13.2	17.7	0.0000
Education system	1=yes; 0=no	5.0	5.7	0.0047
Justice	1=yes; 0=no	17.1	13.7	0.0000
Immigration	1=yes; 0=no	24.8	26.3	0.0010
Poverty	1=yes ; 0=no	23.1	26.2	0.0000
Other	1=yes ; 0=no	2.2	1.6	0.0000

The P-values refer to the Adjusted Wald test of the null hypothesis that the two means are statistically equal.

Table 4

## Panel regressions, total expenditure as the dependent variable, short specification

	Administration	Education	Transport	Environment	Social assistance
Proportion of female councillors	0.016*** (-0.006)	0.00174 (-0.003)	0.006** (-0.003)	-0.009* (-0.005)	-0.00302 (-0.003)
Gender of the mayor	0.001 (-0.002)	0.002 (-0.001)	-0.001 (-0.001)	-0.001 (-0.002)	-0.001 (-0.001)
Council avg. education	-0.006*** (0.000)	0.001*** (0.000)	-0.002*** (0.000)	0.002*** (0.000)	0.001*** (0.000)
Council average age	-0.001*** (0.000)	0.000 (0.000)	-0.001*** (0.000)	0.0005*** (0.000)	0.0003*** (0.000)
Civic party dummy	-0.0003 (-0.002)	0.002** (-0.001)	-0.001 (-0.001)	0.002 (-0.002)	-0.002*** (-0.001)
Right-wing party dummy	-0.00413* (-0.002)	-0.00093 (-0.001)	-0.00294** (-0.001)	0.002 (-0.002)	0.000 (-0.001)
Left-wing party dummy	-0.00351* (-0.002)	0.001 (-0.001)	-0.001 (-0.001)	-0.001 (-0.002)	-0.001 (-0.001)
Constant	0.485*** (-0.011)	0.134*** (-0.006)	0.130*** (-0.006)	0.159*** (-0.009)	0.0339*** (-0.005)
Observations	62813	62813	62813	62813	62813
No. of municipalities	8011	8011	8011	8011	8011

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 5

Panel regressions, current expenditure as the dependent variable, short specification

	Administration	Education	Transport	Environment	Social assistance
Proportion of female councillors	0.01*** (-0.005)	0.003 (-0.002)	0.005** (-0.002)	-0.01*** (-0.004)	-0.002 (-0.003)
Gender of the mayor	0.002 (-0.001)	0.00214*** (-0.001)	-0.001 (-0.001)	-0.003 (-0.001)	-0.001 (-0.001)
Council avg. education	-0.005*** (0.000)	0.001*** (0.000)	-0.001*** (0.000)	0.002*** (0.000)	0.001*** (0.000)
Council average age	-0.001*** (0.000)	0.000 (0.000)	0.000 (0.000)	0.0003*** (0.000)	0.000*** (0.000)
Civic party dummy	-0.001 (-0.001)	0.002** (-0.001)	-0.001 (-0.001)	0.002 (-0.001)	-0.003*** (-0.001)
Right-wing party dummy	-0.004** (-0.002)	0.000 (-0.001)	-0.001 (-0.001)	0.003* (-0.002)	-0.001 (-0.001)
Left-wing party dummy	-0.001 (-0.002)	0.00174** (-0.001)	0.000 (-0.001)	-0.002 (-0.001)	-0.00164* (-0.001)
Constant	0.455*** (-0.010)	0.141*** (-0.005)	0.101*** (-0.005)	0.166*** (-0.008)	0.039*** (-0.005)
Observations	62813	62813	62813	62813	62813
No. of municipalities	8011	8011	8011	8011	8011

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 6

Panel regressions, capital expenditure as the dependent variable, short specification

	Administration	Education	Transport	Environment	Social assistance
Proportion of female councillors	-0.027 (-0.017)	0.002 (-0.009)	-0.006 (-0.014)	0.021 (-0.016)	-0.008* (-0.005)
Gender of the mayor	0.002 (-0.006)	0.005 (-0.003)	-0.004 (-0.005)	0.006 (-0.005)	0.001 (-0.002)
Council avg. education	0.004*** (-0.001)	0.003*** (-0.001)	-0.006*** (-0.001)	-0.003** (-0.001)	0.001** (0.000)
Council average age	0.001 (0.000)	0.000 (0.000)	-0.00141*** (0.000)	0.000 (0.000)	0.000 (0.000)
Civic party dummy	0.004 (-0.006)	-0.00670** (-0.003)	0.000 (-0.005)	0.005 (-0.006)	-0.001 (-0.002)
Right-wing party dummy	0.021*** (-0.007)	-0.013*** (-0.004)	-0.004 (-0.006)	-0.010 (-0.007)	-0.001 (-0.002)
Left-wing party dummy	0.009 (-0.006)	-0.00622* (-0.004)	-0.009* (-0.006)	0.006 (-0.006)	-0.002 (-0.002)
Constant	0.198*** (-0.030)	0.077*** (-0.015)	0.322*** (-0.024)	0.260*** (-0.028)	0.013 (-0.008)
Observations	62813	62813	62813	62813	62813
No. of municipalities	8011	8011	8011	8011	8011

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7

Panel regressions, total expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Proportion of female councillors	0.014*** (-0.006)	0.001 (-0.003)	0.004 (-0.003)	-0.007 (-0.005)	-0.003 (-0.003)
Gender of the mayor	0.000 (-0.002)	0.001 (-0.001)	-0.001 (-0.001)	0.000 (-0.002)	-0.001 (-0.001)
Council average education	-0.005*** (0.000)	0.001*** (0.000)	-0.002*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Council average age	-0.001*** (0.000)	0.000* (0.000)	-0.000*** (0.000)	0.000** (0.000)	0.000*** (0.000)
Civic party dummy	0.000 (-0.002)	0.002** (-0.001)	-0.001 (-0.001)	0.001 (-0.002)	-0.002** (-0.001)
Right-wing party dummy	-0.002 (-0.002)	0.000 (-0.001)	-0.003** (-0.001)	0.000 (-0.002)	0.000 (-0.001)
Left-wing party dummy	-0.002 (-0.002)	0.001 (-0.001)	-0.001 (-0.001)	-0.001 (-0.002)	-0.001 (-0.001)
Electoral cycle	-0.001*** (0.001)	0.000* (0.000)	0.000 (0.000)	-0.000* (0.000)	0.000 (0.000)
Ratio of children	0.083 (-0.074)	0.410*** (-0.036)	0.105** (-0.045)	-0.451*** (-0.061)	0.052* (-0.032)
Ratio of school population	-0.122** (-0.060)	0.419*** (-0.027)	0.033 (-0.037)	-0.271*** (-0.053)	0.054* (-0.028)
Ratio of people aged over 65	0.209*** (-0.027)	-0.106*** (-0.013)	0.157*** (-0.016)	-0.176*** (-0.021)	-0.001 (-0.013)
GDP of the province	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Population	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000*** (0.000)	0.000 (0.000)
Voter turnout	0.016 (-0.010)	-0.009** (-0.004)	-0.005 (-0.006)	0.006 (-0.009)	-0.013*** (-0.005)
Number of crimes per capita	-0.006 (-0.033)	0.019 (-0.016)	0.045** (-0.018)	0.001 (-0.030)	0.000 (-0.015)
Mountains dummy	0.005 (-0.005)	-0.004** (-0.002)	0.015*** (-0.002)	0.010*** (-0.004)	(-0.012*** (-0.002)
Seaside dummy	-0.025*** (-0.004)	-0.021*** (-0.002)	0.000 (-0.002)	0.038*** (-0.003)	-0.001 (-0.002)
Area	0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000** (0.000)	0.000*** (0.000)
Constant	0.371*** (-0.020)	0.064*** (-0.009)	0.065*** (-0.011)	0.365*** (-0.018)	0.023** (-0.009)
Observations	59111	59111	59111	59111	59111
No. of municipalities	7500	7500	7500	7500	7500

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 8

Panel regressions, current expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Proportion of female councillors	0.014*** (-0.005)	0.004* (-0.002)	0.004*** (-0.002)	-0.01** (-0.004)	-0.002 (-0.003)
Gender of the mayor	0.001 (-0.001)	0.001* (-0.001)	-0.001 (-0.001)	-0.002* (-0.001)	-0.001 (-0.001)
Council average education	-0.004*** (0.000)	0.001*** (0.000)	-0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Council average age	-0.000*** (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)
Civic party dummy	0.000 (-0.001)	0.002** (-0.001)	0.000 (-0.001)	0.001 (-0.001)	-0.002*** (-0.001)
Right-wing party dummy	-0.003 (-0.002)	0.000 (-0.001)	0.000 (-0.001)	0.001 (-0.002)	-0.001 (-0.001)
Left-wing party dummy	0.000 (-0.002)	0.002* (-0.001)	0.000 (-0.001)	-0.002 (-0.001)	-0.002* (-0.001)
Electoral cycle	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)	0.000*** (0.000)
Ratio of children	0.022 (-0.062)	0.402*** (-0.033)	0.096*** (-0.032)	-0.483*** (-0.049)	0.110*** (-0.030)
Ratio of school population	-0.117** (-0.052)	0.441*** (-0.026)	0.039 (-0.027)	-0.321*** (-0.042)	0.058** (-0.027)
Ratio of people over 65	0.226*** (-0.026)	-0.098*** (-0.013)	0.106*** (-0.014)	-0.204*** (-0.018)	0.028** (-0.014)
GDP of the province	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Population	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)
Voter turnout	0.005 (-0.009)	-0.009** (-0.004)	-0.007 (-0.005)	0.022*** (-0.007)	-0.013** (-0.005)
Number of crimes per capita	0.059** (-0.024)	0.002 (-0.014)	0.0221* (-0.012)	-0.036 (-0.024)	-0.012 (-0.013)
Mountains dummy	0.015*** (-0.005)	-0.004** (-0.002)	0.015*** (-0.002)	0.006** (-0.003)	-0.014*** (-0.003)
Seaside dummy	-0.038*** (-0.004)	-0.021*** (-0.002)	-0.001 (-0.002)	0.045*** (-0.003)	-0.001 (-0.002)
Area	0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)
Constant	0.371*** (-0.016)	0.065*** (-0.009)	0.061*** (-0.008)	0.363*** (-0.015)	0.010 (-0.009)
Observations	59111	59111	59111	59111	59111
No. of municipalities	7500	7500	7500	7500	7500

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



Table 9

Panel regressions, capital expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Proportion of female councillors	-0.024 (-0.018)	0.004 (-0.009)	-0.008 (-0.015)	0.020 (-0.017)	-0.009* (-0.005)
Gender of the mayor	0.002 (-0.006)	0.005 (-0.003)	-0.004 (-0.005)	0.005 (-0.006)	0.002 (-0.002)
Council average education	0.002 (-0.001)	0.003*** (-0.001)	-0.005*** (-0.001)	-0.003** (-0.001)	0.001*** (0.000)
Council average age	0.000 (0.000)	0.001*** (0.000)	-0.001*** (0.000)	0.000 (0.000)	0.000* (0.000)
Civic party dummy	0.006 (-0.006)	-0.006* (-0.003)	0.000 (-0.005)	0.004 (-0.006)	-0.001 (-0.002)
Right-wing party dummy	0.02** (-0.008)	-0.012*** (-0.004)	-0.003 (-0.006)	-0.008 (-0.008)	-0.001 (-0.002)
Left-wing party dummy	0.010 (-0.006)	-0.007* (-0.004)	-0.009* (-0.006)	0.008 (-0.007)	-0.002 (-0.002)
Electoral cycle	0.0002*** (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Ratio of children	0.089 (-0.214)	0.502*** (-0.100)	0.178 (-0.190)	-0.233 (-0.213)	-0.091 (-0.068)
Ratio of school population	-0.285* (-0.168)	0.387*** (-0.080)	0.034 (-0.146)	-0.078 (-0.175)	0.019 (-0.048)
Ratio of people over 65	-0.081 (-0.064)	-0.151*** (-0.027)	0.199*** (-0.055)	-0.047 (-0.064)	-0.007 (-0.016)
GDP of the province	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000 (0.000)
Population	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000** (0.000)	0.000 (0.000)
Voter turnout	-0.003 (-0.027)	-0.015 (-0.012)	-0.008 (-0.023)	-0.017 (-0.027)	-0.009 (-0.008)
Number of crimes per capita	-0.111 (-0.130)	0.068 (-0.088)	0.146 (-0.115)	0.057 (-0.126)	-0.065 (-0.046)
Mountains dummy	-0.043*** (-0.010)	-0.007 (-0.005)	0.012 (-0.008)	0.040*** (-0.011)	0.000 (-0.002)
Seaside dummy	0.021** (-0.010)	-0.024*** (-0.003)	0.001 (-0.007)	0.012 (-0.010)	-0.006*** (-0.002)
Area	0.000 (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Constant	0.232*** (-0.059)	0.013 (-0.031)	0.217*** (-0.050)	0.388*** (-0.059)	0.024 (-0.017)
Observations	59111	59111	59111	59111	59111
No. of municipalities	7500	7500	7500	7500	7500

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 10

Panel regressions, considering the proportion of women affiliated with the mayor's party, total expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Proportion of women affiliated with the mayor's party	0.011*** (-0.01)	0.00 (0.00)	0.005* (0.00)	0.00 (0.00)	0.00 (0.00)
Gender of the mayor	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Council average education	-0.005*** (0.00)	0.001*** (0.00)	-0.002*** (0.00)	0.001*** (0.00)	0.001*** (0.00)
Council average age	-0.001*** (0.00)	0.0001* (0.00)	-0.0002*** (0.00)	0.0003** (0.00)	0.0003*** (0.00)
Civic party dummy	0.00 (0.00)	0.002** (0.00)	0.00 (0.00)	0.00 (0.00)	-0.002** (0.00)
Right-wing party dummy	0.00 (0.00)	0.00 (0.00)	-0.003** (0.00)	0.00 (0.00)	0.00 (0.00)
Left-wing party dummy	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Electoral cycle	0.000 (0.000)	0.000*** (0.000)	-0.000 (0.000)	-0.000*** (0.000)	0.000 (0.000)
Ratio of children	0.08 (-0.07)	0.410*** (-0.04)	0.105** (-0.04)	-0.451*** (-0.06)	0.05 (-0.03)
Ratio of school population	-0.121** (-0.06)	0.419*** (-0.03)	0.03 (-0.04)	-0.271*** (-0.05)	0.054* (-0.03)
Ratio of people over 65	0.210*** (-0.03)	-0.106*** (-0.01)	0.157*** (-0.02)	-0.177*** (-0.02)	0.00 (-0.01)
GDP of the province	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)
Population	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.000*** (0.00)	0.00 (0.00)
Voter turnout	0.02 (-0.01)	-0.009** (0.00)	-0.01 (-0.01)	0.01 (-0.01)	-0.013*** (-0.01)
Number of crimes per capita	0.00 (-0.03)	0.02 (-0.02)	0.0459** (-0.02)	0.00 (-0.03)	0.00 (-0.01)
Mountains dummy	0.01 (0.00)	-0.004** (0.00)	0.015*** (0.00)	0.009*** (0.00)	-0.012*** (0.00)
Seaside dummy	-0.026*** (0.00)	-0.021*** (0.00)	0.00 (0.00)	0.038*** (0.00)	0.00 (0.00)
Area	-0.0003*** (0.00)	0.000** (0.00)	0.00 (0.00)	0.000** (0.00)	0.0001*** (0.00)
Constant	0.373*** (-0.02)	0.064*** (-0.01)	0.065*** (-0.01)	0.36*** (-0.02)	0.023** (-0.01)
Observations	59111	59111	59111	59111	59111
No. of municipalities	7500	7500	7500	7500	7500

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 11

Panel regressions, considering the proportion of women in the Executive Committee, total expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Proportion of women in the Executive Committee	-0.002 (-0.003)	0.002 (-0.002)	-0.001 (-0.002)	0.002 (-0.003)	-0.003* (-0.002)
Gender of the mayor	0.001 (-0.002)	0.000 (-0.001)	-0.001 (-0.001)	-0.001 (-0.002)	-0.001 (-0.001)
Council average education	-0.005*** (0.000)	0.001*** (0.000)	-0.002*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Council average age	-0.001*** (0.000)	0.000* (0.000)	-0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Civic party dummy	0.000 (-0.002)	0.002** (-0.001)	-0.001 (-0.001)	0.001 (-0.002)	-0.002** (-0.001)
Right-wing party dummy	-0.002 (-0.002)	0.000 (-0.001)	-0.003** (-0.001)	0.000 (-0.002)	0.000 (-0.001)
Left-wing party dummy	-0.002 (-0.002)	0.001 (-0.001)	-0.001 (-0.001)	-0.001 (-0.002)	-0.001 (-0.001)
Electoral cycle	0.000*** (0.000)	0.000*** (0.000)	-0.000 (0.000)	-0.000** (0.000)	0.000 (0.000)
Ratio of children	0.083 (-0.074)	0.411*** (-0.036)	0.105** (-0.045)	-0.451*** (-0.061)	0.052 (-0.032)
Ratio of school population	-0.120** (-0.060)	0.418*** (-0.027)	0.033 (-0.037)	-0.272*** (-0.053)	0.054** (-0.028)
Ratio of people over 65	0.211*** (-0.027)	-0.106*** (-0.013)	0.157*** (-0.016)	-0.178*** (-0.021)	-0.001 (-0.013)
GDP of the province	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)	0.000*** (0.000)
Population	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000*** (0.000)	0.000 (0.000)
Voter turnout	0.016 (-0.010)	-0.009** (-0.004)	-0.005 (-0.006)	0.006 (-0.009)	-0.013*** (-0.005)
Number of crimes per capita	-0.006 (-0.033)	0.019 (-0.016)	0.0450** (-0.018)	0.001 (-0.030)	0.000 (-0.015)
Mountains dummy	0.005 (-0.005)	-0.004** (-0.002)	0.015*** (-0.002)	0.010*** (-0.004)	-0.012*** (-0.002)
Seaside dummy	-0.026*** (-0.004)	-0.021*** (-0.002)	0.000 (-0.002)	0.038*** (-0.003)	-0.001 (-0.002)
Area	-0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)
Constant	0.375*** (-0.020)	0.064*** (-0.009)	0.066*** (-0.011)	0.363*** (-0.018)	0.023** (-0.009)
Observations	59111	59111	59111	59111	59111
No. of municipalities	7500	7500	7500	7500	7500

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 12

Threshold regression. including a dummy=1 if the proportion of women exceeds the first quartile of the distribution. 0 otherwise; total expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Threshold 1 (8% of women)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Gender of the mayor	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Council average education	-0.005*** (0.00)	0.001*** (0.00)	-0.002*** (0.00)	0.001*** (0.00)	0.001*** (0.00)
Council average age	-0.001*** (0.00)	0.0001* (0.00)	-0.0003*** (0.00)	0.0004*** (0.00)	0.0003*** (0.00)
Civic party dummy	0.000 (0.00)	0.002** (0.00)	0.000 (0.00)	0.000 (0.00)	-0.002** (0.00)
Right-wing party dummy	0.000 (0.00)	0.000 (0.00)	-0.003** (0.00)	0.000 (0.00)	0.000 (0.00)
Left-wing party dummy	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Ratio of children	0.08 (-0.07)	0.411*** (-0.04)	0.106** (-0.04)	-0.451*** (-0.06)	0.052* (-0.03)
Ratio of school population	-0.119** (-0.06)	0.419*** (-0.03)	0.03 (-0.04)	-0.272*** (-0.05)	0.0533* (-0.03)
Ratio of people over 65	0.211*** (-0.03)	-0.106*** (-0.01)	0.157*** (-0.02)	-0.177*** (-0.02)	0.000 (-0.01)
GDP of the province	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	-0.000*** (0.00)	0.000*** (0.00)
Population	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	-0.000*** (0.00)	0.000 (0.00)
Voter turnout	0.02 (-0.01)	-0.00898** (0.00)	-0.01 (-0.01)	0.01 (-0.01)	-0.0134*** (-0.01)
Number of crimes per capita	-0.01 (-0.03)	0.02 (-0.02)	0.0451** (-0.02)	0.000 (-0.03)	0.000 (-0.01)
Mountains dummy	0.01 (0.00)	-0.004** (0.00)	0.015*** (0.00)	0.01*** (0.00)	-0.012*** (0.00)
Seaside dummy	-0.026*** (0.00)	-0.021*** (0.00)	0.000 (0.00)	0.038*** (0.00)	0.000 (0.00)
Area	-0.000*** (0.00)	0.000*** (0.00)	0.000 (0.00)	0.000*** (0.00)	0.000*** (0.00)
Constant	0.376*** (-0.02)	0.064*** (-0.01)	0.066*** (-0.01)	0.363*** (-0.02)	0.022** (-0.01)
Observations	59111	59111	59111	59111	59111
No. of municipalities	7500	7500	7500	7500	7500

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 13

Threshold regression, including a dummy=1 if the proportion of women exceeds the median value of the distribution, 0 otherwise; total expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Threshold 2 (15 % of women)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	-0.002* (0.00)	0.000 (0.00)
Gender of the mayor	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Council average education	-0.005*** (0.00)	0.001*** (0.00)	-0.002*** (0.00)	0.001*** (0.00)	0.001*** (0.00)
Council average age	-0.001*** (0.00)	0.0001* (0.00)	-0.0003*** (0.00)	0.0003** (0.00)	0.0003*** (0.00)
Civic party dummy	0.000 (0.00)	0.002** (0.00)	0.000 (0.00)	0.000 (0.00)	-0.002** (0.00)
Right-wing party dummy	0.000 (0.00)	0.000 (0.00)	-0.003** (0.00)	0.000 (0.00)	0.000 (0.00)
Left-wing party dummy	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Ratio of children	0.08 (-0.07)	0.410*** (-0.04)	0.105** (-0.04)	-0.451*** (-0.06)	0.05 (-0.03)
Ratio of school population	-0.120** (-0.06)	0.419*** (-0.03)	0.03 (-0.04)	-0.271*** (-0.05)	0.0536* (-0.03)
Ratio of people over 65	0.211*** (-0.03)	-0.106*** (-0.01)	0.157*** (-0.02)	-0.177*** (-0.02)	0.00 (-0.01)
GDP of the province	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	-0.000*** (0.00)	0.000*** (0.00)
Population	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	-0.000*** (0.00)	0.000 (0.00)
Voter turnout	0.02 (-0.01)	-0.009** (0.00)	-0.01 (-0.01)	0.01 (-0.01)	-0.0135*** (-0.01)
Number of crimes per capita	-0.01 (-0.03)	0.02 (-0.02)	0.0450** (-0.02)	0.000 (-0.03)	0.000 (-0.01)
Mountains dummy	0.01 (0.00)	-0.004** (0.00)	0.015*** (0.00)	0.009*** (0.00)	-0.012*** (0.00)
Seaside dummy	-0.026*** (0.00)	-0.021*** (0.00)	0.00 (0.00)	0.038*** (0.00)	0.00 (0.00)
Area	-0.000*** (0.00)	0.000*** (0.00)	0.00 (0.00)	0.000*** (0.00)	0.0001*** (0.00)
Constant	0.373*** (-0.02)	0.064*** (-0.01)	0.066*** (-0.01)	0.365*** (-0.02)	0.023** (-0.01)
Observations	59111	59111	59111	59111	59111
No. of municipalities	7500	7500	7500	7500	7500

Standard errors clustered at the municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 14

Threshold regression, including a dummy=1 if the proportion of women exceeds the third quartile of the distribution, 0 otherwise; total expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Threshold 3 (23% of women)	0.003*** (0.00)	0.000 (0.00)	0.001** (0.00)	-0.002** (0.00)	0.000 (0.00)
Gender of the mayor	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Council average education	-0.005*** (0.00)	0.001*** (0.00)	-0.002*** (0.00)	0.001*** (0.00)	0.001*** (0.00)
Council average age	-0.001*** (0.00)	0.0001* (0.00)	-0.0002*** (0.00)	0.0003** (0.00)	0.0003*** (0.00)
Civic party dummy	0.00 (0.00)	0.002** (0.00)	0.000 (0.00)	0.000 (0.00)	-0.002** (0.00)
Right-wing party dummy	0.000 (0.00)	0.000 (0.00)	-0.003** (0.00)	0.000 (0.00)	0.000 (0.00)
Left-wing party dummy	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Ratio of children	0.08 (-0.07)	0.410*** (-0.04)	0.106** (-0.04)	-0.451*** (-0.06)	0.05 (-0.03)
Ratio of school population	-0.121** (-0.06)	0.419*** (-0.03)	0.03 (-0.04)	-0.271*** (-0.05)	0.0536* (-0.03)
Ratio of people over 65	0.210*** (-0.03)	-0.106*** (-0.01)	0.156*** (-0.02)	-0.176*** (-0.02)	0.00 (-0.01)
GDP of the province	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	-0.000*** (0.00)	0.000*** (0.00)
Population	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	-0.000*** (0.00)	0.000 (0.00)
Voter turnout	0.02 (-0.01)	-0.009** (0.00)	-0.01 (-0.01)	0.01 (-0.01)	-0.013*** (-0.01)
Number of crimes per capita	-0.01 (-0.03)	0.02 (-0.02)	0.0452** (-0.02)	0.000 (-0.03)	0.000 (-0.01)
Mountains dummy	0.01 (0.00)	-0.004** (0.00)	0.015*** (0.00)	0.01*** (0.00)	-0.012*** (0.00)
Seaside dummy	-0.025*** (0.00)	-0.021*** (0.00)	0.000 (0.00)	0.038*** (0.00)	0.000 (0.00)
Area	-0.0003*** (0.00)	0.000*** (0.00)	0.00 (0.00)	0.000*** (0.00)	0.0001*** (0.00)
Constant	0.373*** (-0.02)	0.064*** (-0.01)	0.065*** (-0.01)	0.365*** (-0.02)	0.023** (-0.01)
Observations	59111	59111	59111	59111	59111
No. of municipalities	7500	7500	7500	7500	7500

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 15

Cross-municipality regression, using the electoral mandate as the unit of observation; total expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Proportion of female councillors	0.060*** (-0.013)	-0.008 (-0.007)	0.002 (-0.007)	-0.008 (-0.010)	-0.029*** (-0.008)
Gender of the mayor	-0.006 (-0.004)	0.00369* (-0.002)	-0.002 (-0.002)	0.000 (-0.003)	0.005 (-0.003)
Council average education	-0.014*** (-0.001)	0.002*** (0.000)	-0.005*** (-0.001)	0.003*** (-0.001)	0.007*** (-0.001)
Council average age	-0.002*** (0.000)	0.000 (0.000)	-0.0005*** (0.000)	0.0007*** (0.000)	0.001*** (0.000)
Civic party dummy	0.017*** (-0.004)	0.001 (-0.002)	0.006*** (-0.002)	-0.005 (-0.003)	-0.008*** (-0.003)
Right-wing party dummy	0.000 (-0.004)	0.002 (-0.002)	-0.003 (-0.002)	-0.002 (-0.004)	0.003 (-0.003)
Left-wing party dummy	0.005 (-0.005)	0.003 (-0.003)	0.010*** (-0.003)	-0.007* (-0.004)	-0.002 (-0.004)
Ratio of children	-0.063 (-0.194)	0.348*** (-0.096)	0.079 (-0.123)	-0.069 (-0.138)	-0.034 (-0.098)
Ratio of school population	-0.245* (-0.141)	0.649*** (-0.076)	0.063 (-0.090)	-0.285*** (-0.110)	0.064 (-0.077)
Ratio of people over 65	0.208*** (-0.045)	-0.072*** (-0.022)	0.197*** (-0.028)	-0.164*** (-0.035)	-0.077*** (-0.025)
GDP of the province	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000*** (0.000)	0.000 (0.000)
Population	1.21e-07* (0.000)	0.000 (0.000)	4.00e-08* (0.000)	-0.000*** (0.000)	0.000 (0.000)
Voter turnout	0.102*** (-0.019)	-0.021** (-0.009)	0.005 (-0.013)	0.008 (-0.016)	-0.085*** (-0.012)
Number of crimes per capita	0.029 (-0.461)	0.210 (-0.212)	0.314 (-0.244)	-0.302 (-0.289)	0.086 (-0.242)
Mountains dummy	0.001 (-0.005)	-0.004 (-0.003)	0.013*** (-0.003)	0.013*** (-0.005)	-0.009*** (-0.003)
Seaside dummy	-0.014*** (-0.004)	-0.020*** (-0.002)	0.001 (-0.002)	0.032*** (-0.004)	-0.008*** (-0.002)
Area	-0.0003*** (0.000)	0.000* (0.000)	0.000** (0.000)	0.000 (0.000)	0.000** (0.000)
Constant	0.412*** (-0.092)	0.035 (-0.042)	0.027 (-0.047)	0.398*** (-0.074)	0.040 (-0.058)
Observations	5462	5462	5462	5462	5462
R squared	0.322	0.359	0.269	0.294	0.291

Standard errors are robust, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 16**

**Coefficients' signs and significance for the proportion of women in the different specifications**

	<b>Administration</b>	<b>Education</b>	<b>Transport</b>	<b>Environment</b>	<b>Social assistance</b>
Proportion of female councillors	++				
Proportion of female councillors affiliated with the mayor	++		+		
Proportion of female councillors in the Executive Committee					—
Threshold 1 (8% of women)					
Threshold 2 (15% of women)				—	
Threshold 3 (23% of women)	+++		++	--	
Eliminating pre-committed expenditure	++				
Fractional logit model	+++				
Proportion of female councillors, electoral mandate	+++				---



Table 17

## Instrumental variable regressions. first stage of the estimation

	Proportion of women
Gender quotas	0.014*** (-0.004)
Gender of the mayor	0.039*** (-0.003)
Council avg. education	0.007*** (-0.001)
Council average age	-0.004*** (-0.0002)
Civic party	0.00 (-0.003)
Right-wing party	-0.010*** (-0.004)
Left-wing party	0.00 (-0.003)
% of children	0.05 (-0.077)
% of school population	0.04 (-0.065)
% of old people	0.142*** (-0.0279)
GDP of the province	0.000*** (-0.000)
Population /	0.00 (-0.000)
Human capital	-0.01 (-0.0162)
Crimes per capita	-0.01 (-0.036)
Mountains	0.00 (-0.004)
Seaside	-0.010*** (-0.004)
Area	-0.0002*** (-0.000)
Constant	0.243*** -0.03
Observations	46300
F test on the relevance of the instrument	11.5***
No. of municipalities	7474

Standard errors in parentheses, year and provincial dummies.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 18**

**Differences between short and long period results for the coefficients of the proportion of women**

	Total spending		Current spending		Capital spending	
	1998-2003	1998-2006	1998-2003	1998-2006	1998-2003	1998-2006
Administration	0.014**	0.014***	0.009*	0.014 ***	-0.031	-0.024
Education	0.004	0.001	0.004	0.004 *	-0.011	0.004
Transport	0.004	0.004	0.003	0.004 ***	-0.010	-0.008
Environment	-0.01**	-0.007	-0.01 ***	-0.01 **	0.019	0.020
Social assistance	-0.003	-0.003	-0.005*	-0.002	-0.007	-0.009*

Table 19

Instrumental variable regressions. total expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Proportion of female councillors	0.094 (-0.312)	0.171 (-0.164)	0.314 (-0.202)	0.158 (-0.253)	-0.231 (-0.228)
Gender of the mayor	-0.003 (-0.013)	-0.007 (-0.007)	-0.0142* (-0.008)	-0.007 (-0.011)	0.008 (-0.008)
Council average education	-0.007*** (-0.002)	0.000 (-0.001)	-0.004*** (-0.001)	0.000 (-0.002)	0.003* (-0.002)
Council average age	-0.001 (-0.001)	0.001 (-0.001)	0.001 (-0.001)	0.001 (-0.001)	-0.001 (-0.001)
Civic party dummy	0.004** (-0.002)	0.004*** (-0.001)	0.000 (-0.001)	-0.002 (-0.002)	-0.003** (-0.001)
Right-wing party dummy	0.000 (-0.004)	0.002 (-0.002)	-0.002 (-0.003)	0.001 (-0.003)	-0.001 (-0.002)
Left-wing party dummy	-0.001 (-0.002)	0.001 (-0.001)	-0.002 (-0.001)	0.000 (-0.002)	-0.001 (-0.001)
Electoral cycle	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Ratio of children	0.078 (-0.062)	0.462*** (-0.031)	0.122*** (-0.042)	-0.479*** (-0.056)	0.027 (-0.036)
Ratio of school population	-0.128** (-0.051)	0.407*** (-0.026)	-0.007 (-0.035)	-0.174*** (-0.046)	0.032 (-0.031)
Ratio of people over 65	0.226*** (-0.051)	-0.134*** (-0.026)	0.123*** (-0.033)	-0.196*** (-0.042)	-0.007 (-0.030)
GDP of the province	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Population	0.000*** (0.000)	0.000 (0.000)	0.000* (0.000)	0.000*** (0.000)	0.000 (0.000)
Voter turnout	0.018* (-0.010)	-0.012** (-0.005)	-0.006 (-0.006)	0.013 (-0.008)	-0.019*** (-0.005)
Number of crimes per capita	-0.037 (-0.035)	0.013 (-0.017)	0.015 (-0.024)	0.141*** (-0.033)	-0.0313* (-0.016)
Mountains dummy	0.004 (-0.005)	-0.004* (-0.003)	0.014*** (-0.003)	0.008** (-0.004)	-0.011*** (-0.004)
Seaside dummy	-0.028*** (-0.005)	-0.020*** (-0.003)	0.004 (-0.003)	0.040*** (-0.004)	-0.005 (-0.004)
Area	-0.000*** (0.000)	-0.000* (0.000)	-0.000* (0.000)	0.000 (0.000)	0.000 (0.000)
Constant	0.370*** (-0.083)	0.016 (-0.043)	-0.009 (-0.055)	0.294*** (-0.071)	0.094* (-0.056)
Observations	46300	46300	46300	46300	46300
No. of municipalities	7474	7474	7474	7474	7474

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 20

Instrumental variable regressions, current expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Proportion of female councillors	0.118 (-0.305)	0.155 (-0.166)	0.192 (-0.180)	0.223 (-0.242)	-0.238 (-0.243)
Gender of the mayor	-0.003 (-0.011)	-0.005 (-0.006)	-0.008 (-0.007)	-0.011 (-0.009)	0.008 (-0.009)
Council average education	-0.005** (-0.002)	0.000 (-0.001)	-0.002 (-0.001)	-0.001 (-0.002)	0.003 (-0.002)
Council average age	0.000 (-0.001)	0.001 (-0.001)	0.001 (-0.001)	0.001 (-0.001)	-0.001 (-0.001)
Civic party dummy	0.002 (-0.002)	0.004*** (-0.001)	0.000 (-0.001)	-0.001 (-0.001)	-0.003*** (-0.001)
Right-wing party dummy	-0.002 (-0.003)	0.003 (-0.002)	0.001 (-0.002)	0.002 (-0.003)	-0.002 (-0.002)
Left-wing party dummy	0.000 (-0.001)	0.002*** (-0.001)	0.000 (-0.001)	-0.002* (-0.001)	-0.002** (-0.001)
Electoral cycle	0.000 (-0.000)	0.000 (-0.000)	0.000 (-0.000)	0.000 (-0.000)	0.000 (-0.000)
Ratio of children	-0.023 (-0.050)	0.450*** (-0.028)	0.066** (-0.028)	-0.436*** (-0.042)	0.071* (-0.037)
Ratio of school population	-0.148*** (-0.042)	0.401*** (-0.023)	0.005 (-0.024)	-0.213*** (-0.035)	0.049 (-0.032)
Ratio of people over 65	0.229*** (-0.042)	-0.135*** (-0.023)	0.101*** (-0.023)	-0.190*** (-0.036)	0.019 (-0.029)
GDP of the province	0.000 (0.000)	0.000*** (0.000)	0.000 (0.000)	-0.000*** (0.000)	0.000*** (0.000)
Population	0.000 (0.000)	0.000 (0.000)	0.000** (0.000)	-0.000** (0.000)	0.000* (0.000)
Voter turnout	0.001 (-0.008)	-0.012*** (-0.004)	-0.006 (-0.004)	0.031*** (-0.007)	-0.016*** (-0.005)
Number of crimes per capita	0.018 (-0.023)	-0.010 (-0.013)	0.006 (-0.012)	0.108*** (-0.021)	-0.048*** (-0.015)
Mountains dummy	0.013*** (-0.005)	-0.004* (-0.003)	0.014*** (-0.003)	0.004 (-0.004)	-0.012*** (-0.004)
Seaside dummy	-0.035*** (-0.006)	-0.020*** (-0.003)	0.002 (-0.003)	0.05*** (-0.004)	-0.005 (-0.005)
Area	-0.000*** (0.000)	0.000* (0.000)	0.000 (0.000)	0.000* (0.000)	0.000 (0.000)
Constant	0.379*** (-0.075)	0.029 (-0.041)	0.021 (-0.044)	0.258*** (-0.061)	0.083 (-0.058)
Observations	46300	46300	46300	46300	46300
No. of municipalities	7474	7474	7474	7474	7474

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 21

Instrumental variable regressions. capital expenditure as the dependent variable

	Administration	Education	Transport	Environment	Social assistance
Proportion of female councillors	-0.508 (-0.760)	0.341 (-0.387)	1.086 (-0.677)	0.686 (-0.776)	-0.135 (-0.208)
Gender of the mayor	0.028 (-0.039)	-0.013 (-0.022)	-0.060* (-0.036)	-0.028 (-0.040)	0.009 (-0.012)
Council average education	0.005 (-0.003)	0.003** (-0.001)	-0.009*** (-0.003)	-0.006 (-0.003)	0.001* (-0.001)
Council average age	-0.002 (-0.004)	0.002 (-0.002)	0.004 (-0.003)	0.003 (-0.004)	0.000 (-0.001)
Civic party dummy	0.0112* (-0.006)	-0.00649* (-0.004)	0.000 (-0.006)	0.000 (-0.006)	-0.002 (-0.002)
Right-wing party dummy	0.0249* (-0.013)	-0.008 (-0.007)	0.007 (-0.012)	-0.005 (-0.013)	-0.003 (-0.004)
Left-wing party dummy	0.0121* (-0.007)	-0.006 (-0.004)	-0.006 (-0.006)	0.009 (-0.007)	-0.003 (-0.002)
Electoral cycle	0.000 (-0.000)	0.000 (-0.000)	0.000 (-0.000)	0.000 (-0.000)	0.000 (-0.000)
Ratio of children	0.017 (-0.219)	0.497*** (-0.130)	0.369* (-0.204)	-0.226 (-0.224)	-0.117* (-0.067)
Ratio of school population	-0.384** (-0.178)	0.475*** (-0.103)	0.021 (-0.165)	0.063 (-0.182)	-0.038 (-0.054)
Ratio of people over 65	-0.018 (-0.122)	-0.185*** (-0.058)	0.063 (-0.107)	-0.121 (-0.125)	-0.003 (-0.032)
GDP of the province	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000*** (0.000)	0.000 (0.000)
Population size	0.000*** (0.000)	-0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)	0.000 (0.000)
Voter turnout	-0.016 (-0.029)	-0.023 (-0.016)	0.006 (-0.026)	-0.025 (-0.030)	-0.002 (-0.008)
Number of crimes per capita	-0.043 (-0.148)	0.122 (-0.097)	-0.012 (-0.142)	0.130 (-0.151)	-0.0807* (-0.049)
Mountains dummy	-0.041*** (-0.011)	-0.005 (-0.006)	0.010 (-0.010)	0.039*** (-0.011)	0.000 (-0.003)
Seaside dummy	0.013 (-0.012)	-0.022*** (-0.006)	0.011 (-0.010)	0.019 (-0.012)	-0.007** (-0.003)
Area	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Constant	0.404* (-0.243)	-0.108 (-0.134)	-0.170 (-0.222)	0.197 (-0.249)	0.079 (-0.071)
Observations	46300	46300	46300	46300	46300
No. of municipalities	7474	7474	7474	7474	7474

Standard errors clustered at municipality level, year and provincial dummies included. The dependent variable is the share of total expenditure devoted to a certain category.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Bibliography

1. Alesina, A. (1988). Credibility and policy convergence in a two-party system with rational voters. *American Economic Review*, 78, pp.796-806.
2. Besley, T. and A. Case (2003). Political institutions and policy choices: empirical evidence from the United States. *Journal of Economic Literature*, 41, pp.7-73.
3. Besley, T. and S. Coate (1997). An economic model of representative democracy. *Quarterly Journal of Economics*, 112, pp.85-114.
4. Bonomi, G., Brosio, G. and M. L. Di Tommaso (2009). Gender quotas in Italy. A random utility model of voting behaviour. Mimeo.
5. Campa, P. (2011). Gender quotas, female politicians and public expenditures: quasi-experimental evidence. Mimeo.
6. Casarico, A. and P. Profeta (2010). *Donne in attesa*. Egea Edizioni, Milano.
7. Clots-Figueras, I. (2009). Are female leaders good for education? Evidence from India. *Working Paper, University Carlos III*.
8. Croson, R. and U. Gneezy (2009). Gender differences in preferences. *Journal of Economic Literature*, 47, pp. 1-27
9. De Paola, M., Scoppa, V. and R. Lombardo (2010). Can gender quotas break down negative stereotypes? Evidence from changes in electoral rules. *Journal of Public Economics*, 94, pp. 344-353.
10. Downs, A. (1957). *An economic theory of democracy*. Addison-Wesley, Boston (MA).
11. Chattopadhyay, R. and E. Duflo (2004). Women as policy makers: evidence from a randomized policy experiment in India. *Econometrica*, 72, pp.1409-1443.
12. Ferreira, F. and J. Gyourko (2009). Do Political Parties Matter? Evidence from U.S. Cities. *The Quarterly Journal of Economics*, 124, pp. 399-422.
13. Funk, P. and C. Gathmann (2010). Gender gaps in policy making: evidence from direct democracy in Switzerland. *Working paper, Universitat Pompeu Fabra*.
14. Gagliarducci, S. and M. D. Paserman (2009). Gender interactions within hierarchies: evidence from the political arena. *NBER Working Papers*, n. 14893.
15. Halse, A. H. (2009). The impact of gender on political priorities. *Master thesis in Economics, Department of Economics, University of Oslo*.
16. Osborne, M.J. and A. Slivinski (1996). A model of political competition with citizen candidates. *Quarterly Journal of Economics*, 111, pp.65-96.
17. Rehavi, M. (2007). Sex and politics: do female legislators affect state spending? Mimeo, University of California Berkeley.
18. Svaleryd, H. (2009). Women's representation and public spending. *European Journal of Political Economy*, 25, pp.186-198.

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- L. FORNI, A. GERALI and M. PISANI, *Macroeconomic effects of greater competition in the service sector: the case of Italy*, Macroeconomic Dynamics, v. 14, 5, pp. 677-708, **TD No. 706 (March 2009)**.
- V. DI GIACINTO, G. MICUCCI and P. MONTANARO, *Dynamic macroeconomic effects of public capital: evidence from regional Italian data*, Giornale degli economisti e annali di economia, v. 69, 1, pp. 29-66, **TD No. 733 (November 2009)**.
- F. COLUMBA, L. GAMBACORTA and P. E. MISTRULLI, *Mutual Guarantee institutions and small business finance*, Journal of Financial Stability, v. 6, 1, pp. 45-54, **TD No. 735 (November 2009)**.
- A. GERALI, S. NERI, L. SESSA and F. M. SIGNORETTI, *Credit and banking in a DSGE model of the Euro Area*, Journal of Money, Credit and Banking, v. 42, 6, pp. 107-141, **TD No. 740 (January 2010)**.
- M. AFFINITO and E. TAGLIAFERRI, *Why do (or did?) banks securitize their loans? Evidence from Italy*, Journal

- of Financial Stability, v. 6, 4, pp. 189-202, **TD No. 741 (January 2010)**.
- S. FEDERICO, *Outsourcing versus integration at home or abroad and firm heterogeneity*, Empirica, v. 37, 1, pp. 47-63, **TD No. 742 (February 2010)**.
- V. DI GIACINTO, *On vector autoregressive modeling in space and time*, Journal of Geographical Systems, v. 12, 2, pp. 125-154, **TD No. 746 (February 2010)**.
- L. FORNI, A. GERALI and M. PISANI, *The macroeconomics of fiscal consolidations in euro area countries*, Journal of Economic Dynamics and Control, v. 34, 9, pp. 1791-1812, **TD No. 747 (March 2010)**.
- S. MOCETTI and C. PORELLO, *How does immigration affect native internal mobility? new evidence from Italy*, Regional Science and Urban Economics, v. 40, 6, pp. 427-439, **TD No. 748 (March 2010)**.
- A. DI CESARE and G. GUAZZAROTTI, *An analysis of the determinants of credit default swap spread changes before and during the subprime financial turmoil*, Journal of Current Issues in Finance, Business and Economics, v. 3, 4, pp., **TD No. 749 (March 2010)**.
- P. CIPOLLONE, P. MONTANARO and P. SESTITO, *Value-added measures in Italian high schools: problems and findings*, Giornale degli economisti e annali di economia, v. 69, 2, pp. 81-114, **TD No. 754 (March 2010)**.
- A. BRANDOLINI, S. MAGRI and T. M. SMEEDING, *Asset-based measurement of poverty*, Journal of Policy Analysis and Management, v. 29, 2, pp. 267-284, **TD No. 755 (March 2010)**.
- G. CAPPELLETTI, *A Note on rationalizability and restrictions on beliefs*, The B.E. Journal of Theoretical Economics, v. 10, 1, pp. 1-11, **TD No. 757 (April 2010)**.
- S. DI ADDARIO and D. VURI, *Entrepreneurship and market size. the case of young college graduates in Italy*, Labour Economics, v. 17, 5, pp. 848-858, **TD No. 775 (September 2010)**.
- A. CALZA and A. ZAGHINI, *Sectoral money demand and the great disinflation in the US*, Journal of Money, Credit, and Banking, v. 42, 8, pp. 1663-1678, **TD No. 785 (January 2011)**.

2011

- S. DI ADDARIO, *Job search in thick markets*, Journal of Urban Economics, v. 69, 3, pp. 303-318, **TD No. 605 (December 2006)**.
- F. SCHIVARDI and E. VIVIANO, *Entry barriers in retail trade*, Economic Journal, v. 121, 551, pp. 145-170, **TD No. 616 (February 2007)**.
- G. FERRERO, A. NOBILI and P. PASSIGLIA, *Assessing excess liquidity in the Euro Area: the role of sectoral distribution of money*, Applied Economics, v. 43, 23, pp. 3213-3230, **TD No. 627 (April 2007)**.
- P. E. MISTRULLI, *Assessing financial contagion in the interbank market: maximum entropy versus observed interbank lending patterns*, Journal of Banking & Finance, v. 35, 5, pp. 1114-1127, **TD No. 641 (September 2007)**.
- E. CIAPANNA, *Directed matching with endogenous markov probability: clients or competitors?*, The RAND Journal of Economics, v. 42, 1, pp. 92-120, **TD No. 665 (April 2008)**.
- M. BUGAMELLI and F. PATERNÒ, *Output growth volatility and remittances*, Economica, v. 78, 311, pp. 480-500, **TD No. 673 (June 2008)**.
- V. DI GIACINTO e M. PAGNINI, *Local and global agglomeration patterns: two econometrics-based indicators*, Regional Science and Urban Economics, v. 41, 3, pp. 266-280, **TD No. 674 (June 2008)**.
- G. BARONE and F. CINGANO, *Service regulation and growth: evidence from OECD countries*, Economic Journal, v. 121, 555, pp. 931-957, **TD No. 675 (June 2008)**.
- R. GIORDANO and P. TOMMASINO, *What determines debt intolerance? The role of political and monetary institutions*, European Journal of Political Economy, v. 27, 3, pp. 471-484, **TD No. 700 (January 2009)**.
- P. ANGELINI, A. NOBILI e C. PICILLO, *The interbank market after August 2007: What has changed, and why?*, Journal of Money, Credit and Banking, v. 43, 5, pp. 923-958, **TD No. 731 (October 2009)**.
- L. FORNI, A. GERALI and M. PISANI, *The Macroeconomics of Fiscal Consolidation in a Monetary Union: the Case of Italy*, in Luigi Paganetto (ed.), Recovery after the crisis. Perspectives and policies, VDM Verlag Dr. Muller, **TD No. 747 (March 2010)**.
- A. DI CESARE and G. GUAZZAROTTI, *An analysis of the determinants of credit default swap changes before and during the subprime financial turmoil*, in Barbara L. Campos and Janet P. Wilkins (eds.), The Financial Crisis: Issues in Business, Finance and Global Economics, New York, Nova Science Publishers, Inc., **TD No. 749 (March 2010)**.
- A. LEVY and A. ZAGHINI, *The pricing of government guaranteed bank bonds*, Banks and Bank Systems, v. 6, 3, pp. 16-24, **TD No. 753 (March 2010)**.

- G. GRANDE and I. VISCO, *A public guarantee of a minimum return to defined contribution pension scheme members*, *The Journal of Risk*, v. 13, 3, pp. 3-43, **TD No. 762 (June 2010)**.
- P. DEL GIOVANE, G. ERAMO and A. NOBILI, *Disentangling demand and supply in credit developments: a survey-based analysis for Italy*, *Journal of Banking and Finance*, v. 35, 10, pp. 2719-2732, **TD No. 764 (June 2010)**.
- G. BARONE and S. MOCETTI, *With a little help from abroad: the effect of low-skilled immigration on the female labour supply*, *Labour Economics*, v. 18, 5, pp. 664-675, **TD No. 766 (July 2010)**.
- A. FELETTIGH and S. FEDERICO, *Measuring the price elasticity of import demand in the destination markets of italian exports*, *Economia e Politica Industriale*, v. 38, 1, pp. 127-162, **TD No. 776 (October 2010)**.
- S. MAGRI and R. PICO, *The rise of risk-based pricing of mortgage interest rates in Italy*, *Journal of Banking and Finance*, v. 35, 5, pp. 1277-1290, **TD No. 778 (October 2010)**.
- M. TABOGA, *Under/over-valuation of the stock market and cyclically adjusted earnings*, *International Finance*, v. 14, 1, pp. 135-164, **TD No. 780 (December 2010)**.
- S. NERI, *Housing, consumption and monetary policy: how different are the U.S. and the Euro area?*, *Journal of Banking and Finance*, v.35, 11, pp. 3019-3041, **TD No. 807 (April 2011)**.
- V. CUCINIELLO, *The welfare effect of foreign monetary conservatism with non-atomistic wage setters*, *Journal of Money, Credit and Banking*, v. 43, 8, pp. 1719-1734, **TD No. 810 (June 2011)**.
- A. CALZA and A. ZAGHINI, *welfare costs of inflation and the circulation of US currency abroad*, *The B.E. Journal of Macroeconomics*, v. 11, 1, Art. 12, **TD No. 812 (June 2011)**.
- I. FAIELLA, *La spesa energetica delle famiglie italiane*, *Energia*, v. 32, 4, pp. 40-46, **TD No. 822 (September 2011)**.
- R. DE BONIS and A. SILVESTRINI, *The effects of financial and real wealth on consumption: new evidence from OECD countries*, *Applied Financial Economics*, v. 21, 5, pp. 409-425, **TD No. 837 (November 2011)**.

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- A. ACCETTURO and G. DE BLASIO, *Policies for local development: an evaluation of Italy's "Patti Territoriali"*, *Regional Science and Urban Economics*, v. 42, 1-2, pp. 15-26, **TD No. 789 (January 2006)**.

#### FORTHCOMING

- M. BUGAMELLI and A. ROSOLIA, *Produttività e concorrenza estera*, *Rivista di politica economica*, **TD No. 578 (February 2006)**.
- F. CINGANO and A. ROSOLIA, *People I know: job search and social networks*, *Journal of Labor Economics*, **TD No. 600 (September 2006)**.
- S. MOCETTI, *Educational choices and the selection process before and after compulsory school*, *Education Economics*, **TD No. 691 (September 2008)**.
- P. SESTITO and E. VIVIANO, *Reservation wages: explaining some puzzling regional patterns*, *Labour*, **TD No. 696 (December 2008)**.
- P. PINOTTI, M. BIANCHI and P. BUONANNO, *Do immigrants cause crime?*, *Journal of the European Economic Association*, **TD No. 698 (December 2008)**.
- F. LIPPI and A. NOBILI, *Oil and the macroeconomy: a quantitative structural analysis*, *Journal of European Economic Association*, **TD No. 704 (March 2009)**.
- F. CINGANO and P. PINOTTI, *Politicians at work. The private returns and social costs of political connections*, *Journal of the European Economic Association*, **TD No. 709 (May 2009)**.
- Y. ALTUNBAS, L. GAMBACORTA, and D. MARQUÉS-IBÁÑEZ, *Bank risk and monetary policy*, *Journal of Financial Stability*, **TD No. 712 (May 2009)**.
- G. BARONE and S. MOCETTI, *Tax morale and public spending inefficiency*, *International Tax and Public Finance*, **TD No. 732 (November 2009)**.
- I. BUONO and G. LALANNE, *The effect of the Uruguay Round on the intensive and extensive margins of trade*, *Journal of International Economics*, **TD No. 835 (February 2011)**.
- G. BARONE, R. FELICI and M. PAGNINI, *Switching costs in local credit markets*, *International Journal of Industrial Organization*, **TD No. 760 (June 2010)**.

- E. COCOZZA and P. PISELLI, *Testing for east-west contagion in the European banking sector during the financial crisis*, in R. Matoušek; D. Stavárek (eds.), *Financial Integration in the European Union*, Taylor & Francis, **TD No. 790 (February 2011)**.
- S. NERI and T. ROPELE, *Imperfect information, real-time data and monetary policy in the Euro area*, *The Economic Journal*, **TD No. 802 (March 2011)**.
- M. AFFINITO, *Do interbank customer relationships exist? And how did they function in the crisis? Learning from Italy*, *Journal of Banking and Finance*, **TD No. 826 (October 2011)**.
- O. BLANCHARD and M. RIGGI, *Why are the 2000s so different from the 1970s? A structural interpretation of changes in the macroeconomic effects of oil prices*, *Journal of the European Economic Association*, **TD No. 835 (November 2011)**.
- R. CRISTADORO and D. MARCONI, *Households Savings in China*, *Chinese Economic and Business Studies*, **TD No. 838 (November 2011)**.