



OBJECTIVES

- We are interested to analyse whether a greater presence of female politicians in municipal bodies attenuates or increases the use of the **Political Budget Cycle(PBC)**, i.e. a periodic fluctuation in fiscal policy implemented by governments in proximity to election period in order to boost re-election chance.
- To assess the impact of gender composition on the PBC and avoid endogeneity issues, an **exogenous variation in the number of women elected** is needed. This change is given by the law no. 81/1993 (**gender quotas reform**) introduced in Italy in 1993 and repealed in 1995 due to its unconstitutionality.
- Using the elections that took place during this period as an instrument, we adopt a novel instrumental variable approach, called **Sub-Sample 2SLS**.

INTRODUCTION

- Female legislators devote particular attention to distinctive issues and priorities.
- Gender composition of political institutions, by impacting on the legislative process, shapes the allocation of resources across different categories of public goods.
- Increasing the number of women in political bodies can help shaping virtuous and more effective institutions.

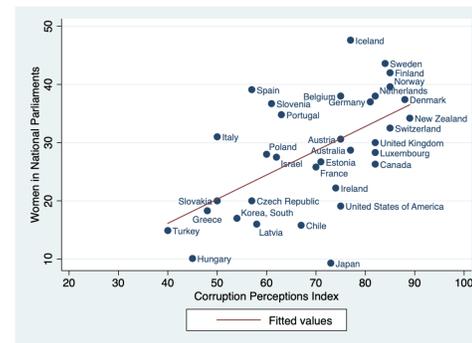


Figure 1: Women and Corruption - OECD Countries

MAIN RESULTS

| | Baseline specification | | W/o controls | W/o year effects |
|--|------------------------|----------------------|-------------------|----------------------|
| | (1) | (2) | (3) | (4) |
| | Invest. exp. | Invest. exp. | Invest. exp. | Invest. exp. |
| 3 years before election | 0.21*** (0.04) | 0.21*** (0.01) | 0.22*** (0.04) | 0.20** (0.04) |
| 2 years before election | 0.26*** (0.04) | 0.26*** (0.04) | 0.27*** (0.04) | 0.25*** (0.04) |
| 1 year before election | 0.31*** (0.04) | 0.31*** (0.04) | 0.31*** (0.04) | 0.30*** (0.04) |
| 1 year after election | -0.15*** (0.04) | -0.15*** (0.04) | -0.15** (0.04) | -0.13*** (0.04) |
| 3 years before elec.*Females share ^{IV} (%) | -0.053*** (0.16) | -0.056*** (0.01) | 0.153 (0.04) | -0.0251*** (0.00) |
| 2 years before elec.*Females share ^{IV} (%) | -0.067*** (0.01) | -0.069*** (0.01) | 0.12 (0.15) | -0.029*** (0.00) |
| 1 year before elec.*Females share ^{IV} (%) | 0.068*** (0.03) | 0.09*** (0.03) | 0.245 (0.18) | -0.0145*** (0.00) |
| 1 year after elec.*Females share ^{IV} (%) | -0.023*** (0.01) | -0.027*** (0.008) | 0.153 (0.14) | -0.014*** (0.00) |
| Mean of dep. var. | 5.64 | 5.64 | 5.64 | 5.64 |
| Controls | Y | Y | N | Y |
| Year Effects | Y | Y | Y | N |
| Year-Region Effects | Y | Y | Y | N |
| Municipality Effects | N | Y | Y | N |
| R ² | 0.43 | 0.20 | 0.42 | 0.19 |
| Obs. | 85,426 | 85,426 | 88,061 | 85,426 |

Notes: Dependent variable is the natural log of per-capita capital expenditure expressed in 2005 euros. Female share is the total percentage of women in the municipal government. Standard errors are robust to heteroscedasticity and clustered at municipality level.

* p < 0.1; ** p < 0.05; *** p < 0.001.

- IV: dummy variable=1 for local elections held from March 25, 1993 to September 12, 1995.**
- Quasi-experimental setup: both **Exogeneity** and **Relevance** conditions hold.
- Instrument is not "weak":** all F-statistics are larger than the rule of thumb value of 10.
- Effect on elected female share positive and significant for all First-Stage regressions.**

- Female politicians are less prone to use public spending in an electoral cycle perspective.
- PBC gets smoothed.** For instance: **three years before elections, an increase of one percent of female share in charge reduces capital expenditures by 5.3 percent.**
- Only the coefficient one year before elections records an increment (6.8 percent).
- This result depends on its first-stage estimated coefficient. The contraction recorded on the first-stage regression brings to a negative estimated share of female on the third year of the electoral cycle, which ends up for reducing its effect on PBC.

| | Tot. Fem. Share | 3 yr. bef. elec.*Fem. share | 2 yr. bef. elec.*Fem. share | 1 yr. bef. elec.*Fem. share | 1 yr. aft. elec.*Fem. share |
|-------------------------|-------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| | (1) | (2) | (3) | (4) | (5) |
| Gender Quotas Elections | 5.83*** (0.16) | 3.17*** (0.087) | 2.84*** (0.099) | -1.66*** (0.10) | 1.85*** (0.89) |
| F-statistics | 516.29 | 1,427.98 | 1,118.18 | 929.92 | 1277.45 |
| Mean of dep. var. | 14.66 | 3.35 | 3.42 | 2.98 | 3.32 |
| Controls | N | N | N | N | N |
| Year Effects | Y | Y | Y | Y | Y |
| Municipality Effects | Y | Y | Y | Y | Y |
| R ² | 0.57 | 0.34 | 0.31 | 0.30 | 0.33 |
| Observations | 173,408 | 158,909 | 151,710 | 144,487 | 166,169 |

Notes: Total female share is the total percentage of women in the municipal government. In columns 2-5, total female share is interacted with the electoral cycle's dummies. Standard errors are robust to heteroscedasticity and clustered at municipality level.

* p < 0.1; ** p < 0.05; *** p < 0.001.

DATA

Data on **6,700 Italian municipalities** (out of about 8,100). Final dataset used is composed of **two different sub-samples**:

- Restricted sub-sample (1999-2012): economic variable** (based on official municipal balance sheets).
- Expanded sub-sample (1986-2012): electoral outcomes** (from which the percentage of elected women is calculated).

Since those sub-samples overlap and they are not independent, then the first-stage coefficients are stable between the two sub-samples and the Sub-Sample 2SLS is perfectly applicable.

ECONOMETRIC STRATEGY

Second-Stage Equation:

$$y_{i,t} = \alpha + \beta_1' Ele + \beta_2' Ele \times Fem_{i,t} + \gamma' X_{i,t} + \mu_i + \delta_t + \lambda_r \times \delta_t + \epsilon_{i,t} \quad (1)$$

$y_{i,t}$ is the capital spending for municipality i in year t . Ele is a set of dummies built to capture the timing of the electoral cycle and it is defined as follows:

$$Ele = \begin{cases} Ele_{t-3} = 1 & \text{three years before elections} \\ Ele_{t-2} = 1 & \text{two years before elections} \\ Ele_{t-1} = 1 & \text{one year before elections} \\ Ele_{t+1} = 1 & \text{one year after elections} \end{cases}$$

First-Stage Equations:

$$Fem_{i,t} = \omega + \psi' Z_{i,t} + \mu_i + \delta_t + v_{i,t} \quad (2)$$

Equation 2 regresses the female share of municipality i at time t on an instrumental variable $Z_{i,t}$, consisting of a dummy variable which assume value 1 if a municipalities voted when the Law no. 81/1993 where in force. Since that the female share is interacted with the electoral cycle dummies, there are four more first-stage regressions:

$$Fem_{i,t} * Ele = \omega + \psi' Z_{i,t} + \mu_i + \delta_t + v_{i,t} \quad (3)$$

FALSIFICATION TESTS

| | Placebo Instruments | | |
|--|------------------------|---------------------|---------------------|
| | Baseline specification | Elections 1986-1989 | Elections 2006-2012 |
| | (1) | (2) | (3) |
| | Invest. exp. | Invest. exp. | Invest. exp. |
| 3 years before election | 0.21*** (0.04) | 0.21*** (0.01) | 0.21*** (0.04) |
| 2 years before election | 0.26*** (0.04) | 0.26*** (0.01) | 0.28*** (0.04) |
| 1 year before election | 0.31*** (0.04) | 0.31*** (0.01) | 0.31*** (0.04) |
| 1 year after election | -0.15*** (0.04) | -0.15*** (0.01) | -0.15*** (0.04) |
| 3 years before elec.*Females share ^{IV} (%) | -0.053*** (0.01) | -0.053*** (0.01) | -0.053*** (0.01) |
| 2 years before elec.*Females share ^{IV} (%) | -0.067*** (0.01) | -0.067*** (0.01) | -0.067*** (0.01) |
| 1 year before elec.*Females share ^{IV} (%) | 0.068*** (0.03) | 0.068*** (0.03) | 0.068*** (0.03) |
| 1 year after elec.*Females share ^{IV} (%) | -0.023*** (0.01) | -0.023*** (0.01) | -0.023*** (0.01) |
| Mean of dep. var. | 5.64 | 5.64 | 5.64 |
| Controls | Y | Y | Y |
| Year Effects | Y | Y | Y |
| Municipality Effects | Y | Y | Y |
| R ² | 0.43 | 0.43 | 0.43 |
| Observations | 85,426 | 85,426 | 85,426 |

Notes: Dependent variable is the natural log of per-capita capital expenditure expressed in 2005 euros. Female share is the total percentage of women in the municipal government. Standard errors are robust to heteroscedasticity and clustered at municipality level.

* p < 0.1; ** p < 0.05; *** p < 0.001.

- Placebo IV: non gender quotas elections.**
- Interactions with the percentage of women elected get significantly lower estimates.
- Alternations in First-Stage coefficients: no exogenous upward forcing in the share of female candidates.**

| | Tot. Fem. Share | 3 yr. bef. elec.*Fem. share | 2 yr. bef. elec.*Fem. share | 1 yr. bef. elec.*Fem. share | 1 yr. aft. elec.*Fem. share |
|-----------------------|---------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| | (1) | (2) | (3) | (4) | (5) |
| Elections (1986-1989) | -0.071*** (0.22) | -0.23*** (0.076) | 3.11*** (0.10) | 5.11*** (0.18) | -2.86*** (0.76) |
| F-statistics | 512.05 | 1,405.76 | 1,100.43 | 974.66 | 1245.65 |
| Mean of dep. var. | 14.66 | 3.35 | 3.42 | 2.98 | 3.32 |
| Controls | N | N | N | N | N |
| Year Effects | Y | Y | Y | Y | Y |
| Municipality Effects | Y | Y | Y | Y | Y |
| R ² | 0.56 | 0.33 | 0.31 | 0.29 | 0.33 |
| Observations | 173,408 | 158,909 | 151,710 | 144,487 | 166,169 |

| | Tot. Fem. Share | 3 yr. bef. elec.*Fem. share | 2 yr. bef. elec.*Fem. share | 1 yr. bef. elec.*Fem. share | 1 yr. aft. elec.*Fem. share |
|-----------------------|--------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| | (1) | (2) | (3) | (4) | (5) |
| Elections (2006-2012) | 0.57*** (0.052) | -0.52*** (0.052) | -1.49*** (0.052) | -5.83*** (0.10) | 0.47*** (0.78) |
| F-statistics | 516.29 | 1,396.54 | 1,101.47 | 993.51 | 1240.34 |
| Mean of dep. var. | 14.66 | 3.35 | 3.42 | 2.98 | 3.32 |
| Controls | N | N | N | N | N |
| Year Effects | Y | Y | Y | Y | Y |
| Municipality Effects | Y | Y | Y | Y | Y |
| R ² | 0.56 | 0.33 | 0.31 | 0.30 | 0.33 |
| Observations | 173,408 | 158,909 | 151,710 | 144,487 | 166,169 |

Notes: (Both panels) Total female share is the total percentage of women in the municipal government. In columns 2-5, total female share is interacted with the electoral cycle's dummies. Standard errors are robust to heteroscedasticity and clustered at municipality level.

* p < 0.1; ** p < 0.05; *** p < 0.001.

REFERENCES

[1] M. De Paola, V. Scoppa, and R. Lombardo. Can gender quotas break down negative stereotypes? evidence from changes in electoral rules. *Journal of Public Economics*, 94, 2010.

FURTHER RESULTS

- Institutional aspects (e.g. different electoral system or being subjected to fiscal constraints) do not change the magnitude of the estimated effect of female participation on the PBC.
- Regardless of exogenous factors, women in politics have more virtuous fiscal behaviours and less unscrupulous attitudes than their male colleagues, who instead pursue personal and patronage goals rather than collective welfare.

CONTACT INFORMATION

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