

Balance sheet disclosure and the budget cycle of Italian municipalities

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Political budget cycles

- ❖ A **political budget cycle** is a periodic fluctuation in a government's fiscal policies induced by the cyclicity of elections (Nordhaus 1975).
- ❖ Politicians may increase public good provision or reduce taxes before elections to obtain voters' favour and increase their chances of re-election.
- ❖ These cycles are found at the country, region and municipality level, and often appear in visible expenditures: roads, parks, restoration of public buildings.

Budget cycles: the role of information - I

- ❖ Voters wish to elect the most competent candidates: those who, after elections, will provide more public goods (Rogoff and Siebert 1988, Persson and Tabellini 2000).
- ❖ Politicians have incentives to provide more public good before elections
 - ❖ If voters pay more attention close to elections, and
 - ❖ If public good provision is a signal for competence.
- ❖ In presence of a source of financing observed by voters with a delay (e.g. debt), an increase in public good before elections may be mistaken for competence.
- ❖ Politicians can exploit this informational advantage to finance an increase in public good provision with debt and fool voters.

Quasi-experimental variation in information

- ❖ In this paper I ask whether politicians have less incentives to manipulate public good provision when voters are informed before elections.
- ❖ An ideal experiment would randomly pick voters and expose them to different amounts of information.
- ❖ I make use of a reform that, starting 2008, required all Italian municipalities to disclose their balance sheet to voters before elections.
- ❖ This reform induced quasi-experimental variation in the amount of information on municipal spending and revenues voters have.

How is the political budget cycle affected by giving voters new information?

Municipal-level data for Italy

- ❖ Construct a panel of balance sheets: data on expenditures and revenues for 6,536 Italian municipalities, 1999-2012.
- ❖ The municipal balance sheet provides detailed information on how resources are used and how they are financed.

Empirical strategy: the reform

- ❖ In 2008, a reform required all Italian municipalities to disclose their balance sheet to the public before municipal elections.
- ❖ The reform provides voters, the opposition and the local press with a new **accountability device** for the mayor in office.

Empirical strategy: estimation

- ❖ Estimate the effect of the reform in a diff-in-diffs framework: compare municipalities in different years of the term and before and after the 2008 reform.
- ❖ Staggered election timing allows to include calendar year effects, controlling for common shocks.

This paper - Results

1. Municipal budget cycle

- ❖ In the pre-electoral year, investment expenditures is 29% of the sample mean higher with respect to the year of election. Concentrated in visible categories: roads, parks, public housing.
- ❖ This increase is financed with borrowing and sales of public assets.

2. The effect of the reform

- ❖ After the reform, the pre-electoral increase is reduced by one-third.
- ❖ The effect of the reform is twice as strong in areas of high sales of **local newspapers**.

This paper: contributions

Information and accountability

- ❖ The effect of information on voters' behaviour (Ferraz and Finan 2008, Banerjee et al. 2011) and politicians' behaviour (Stromberg 2004, Olken 2007).
 - ❖ I use the balance sheet as a new source of information. Countrywide study.

Budget cycles and information

- ❖ Spending fluctuations decrease with information (González 2001, Shi and Svensson 2006).
 - ❖ I use exogenous variation in a direct source of information as opposed to a proxy (e.g. radios per capita).
 - ❖ Use within-country data, thus keeping institutions fixed (Alesina and Paradisi 2014).

Outline of the talk

1. Conceptual framework

A simple model of the budget cycle

2. Institutional background

Municipalities: role, balance sheet and elections

3. Data

A panel of municipalities, 1999-2012

4. Empirical analysis

Difference-in-differences evaluation of the reform

Spending and the probability of re-election

5. Robustness checks

Parallel trends, exogeneity of electoral cycle

6. Conclusions

Conceptual framework

A simple model of budget cycles

- Based on Shi and Svensson (2006)

Politicians

$$V_t^j = \sum_{s=t}^T [g_s + u(c_s) + X],$$

$$g_t = \tau_t + d_t - R(d_{t-1}) + \eta_t^j,$$

- $R(d)$ is the cost of borrowing, convex ($R''(d) > 0$),
- η_t^j is a politician' unobserved ability (e.g. to secure transfers):

$$\eta_t^j = \mu_t^j + \mu_{t-1}^j,$$

- where μ_t is an *iid* competence shock.

A simple model of budget cycles

Voters

$$U_t^i = \sum_{s=t}^T [g_s + u(c_s) + \theta_i z_s + \epsilon_i - \gamma \epsilon_i^2], \quad c_t = y - \tau_t,$$

- ❖ $\theta_i \sim Unif[-1/2, 1/2]$ and $z_t = -1/2$ if politician a is in power, $1/2$ if b is.
- ❖ $\gamma \epsilon_i^2$ is the cost of being informed.
- ❖ Voter i decides to be informed only if $\epsilon_i \geq \gamma \epsilon_i^2 \Leftrightarrow 0 \leq \epsilon_i \leq \frac{1}{\gamma}$.
- ❖ A fraction π of voters incur the cost and can observe d_t and η_t^i :

$$\pi \equiv Pr \left(0 \leq \epsilon_i \leq \frac{1}{\gamma} \right) = G \left(\frac{1}{\gamma} \right).$$

Voters' strategy and timing

Period t

- At the beginning of period t , incumbent sets taxes τ_t and debt d_t . Then, competence shock μ_t^j occurs.
- All voters observe τ_t and g_t ; a fraction π also observe the full balance sheet and can determine borrowing d_t and μ_t^j .
- Uninformed voters estimate the level of debt to be \hat{d}_t .
- Strategy is re-elect if $E(U_{t+1}^I) > E(U_{t+1}^O)$.
- Elections take place at the end of period t .

Following periods

- In $t + 1$, timing is the same but no elections take place. In $t + 2$, new elections.

The incumbent's problem

- Incumbent chooses d_t and τ_t to maximise her expected utility:

$$\begin{aligned} \max_{d_t, \tau_t} E_t [& (\tau_t + d_t) \eta_t^l + u(y - \tau_t) + X] + \\ & P_t E_t [\tau_{t+1} - R(d_t) + \eta_{t+1}^l + u(y - \tau_{t+1}) + X] \\ & + (1 - P_t) E_t [\tau_{t+1} - R(d_t) + \eta_{t+1}^o + u(y - \tau_{t+1})]. \end{aligned}$$

where P_t is the probability of re-election:

$$P_t = 1 - F[(1 - \pi)(\hat{d}_t - d_t)].$$

Maximisation yields the optimal level of taxes τ^* and debt d_t^* :

$$\begin{aligned} \tau^* &= y - u_c^{-1}(1), \\ R'(d_t^*) &= 1 + (1 - \pi)F'[(1 - \pi)(\hat{d}_t - d_t)]X. \end{aligned}$$

Model prediction

$$R'(d_t^*) = 1 + (1 - \pi)F'[(1 - \pi)(\hat{d}_t - d_t)]X$$

1. As the fraction of informed voters increases, **borrowing** and **public spending** decrease: $\frac{\partial d_t^*}{\partial \pi} < 0$, $\frac{\partial g_t^*}{\partial \pi} < 0$
 - ❖ These predictions can be tested with data.
 - ❖ The effect of the reform is to decrease the cost of information and, hence, increase the fraction of informed voters π .

Institutional background

Italian municipalities

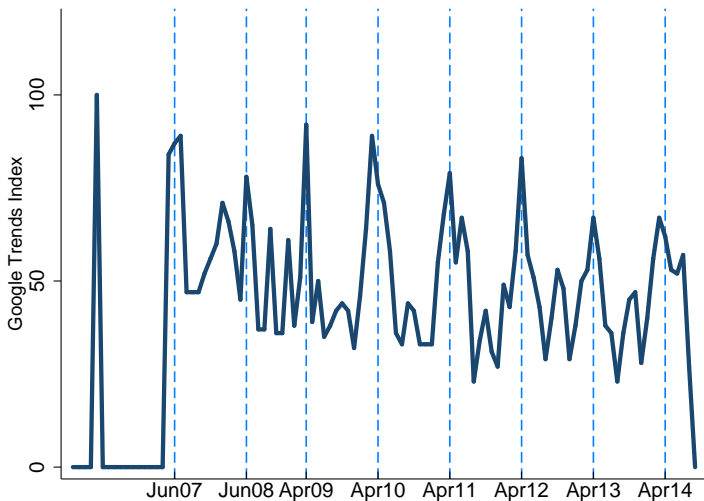
- ❖ Municipalities provide public goods and services: transportation, welfare, public housing and utilities.
- ❖ The **mayor** holds office for 5 years for at most two consecutive terms. She appoints and presides the municipal **committee**.
- ❖ The **city council** approves policies and the balance sheet.

Municipal balance sheets

- ❖ The balance sheet details the type and destination of expenditures (roads, personnel, health care), and how they are financed (new debt, sales of public assets, taxes).
- ❖ It must be approved by April 30 (June 30 before 2008) of the following year.

The balance sheet as an information device - I

Google searches for *bilancio consuntivo*



The balance sheet as an information device - II

- ❖ Voters are unlikely to obtain information directly from the balance sheets.
- ❖ Local newspaper play a crucial role in disseminating this information (Drago et al. 2014):

Casalmaggiore. Venticinquemila euro per il sociale, 10mila per un leasing sul nuovo pulmino per il trasporto scolastico

«Avanzo per crisi e scuolabus»

Le proposte del Listone per destinare i 59mila euro a consuntivo

Pandino. Consuntivo di bilancio: duro intervento di Massimo Labò, An

«Cancellata la sicurezza»

“Surplus [to be used] for the crisis and schoolbuses”.

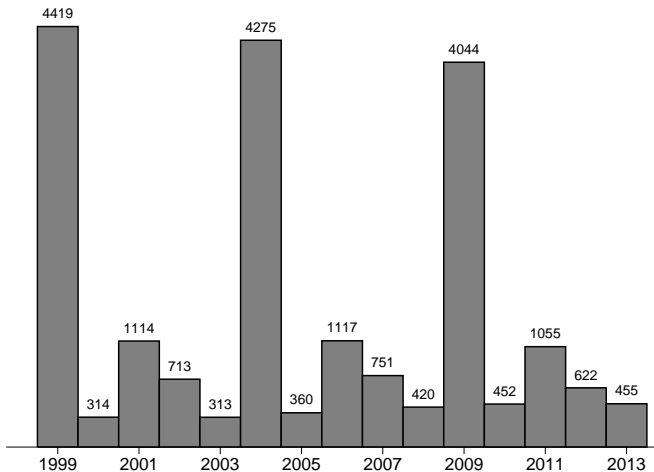
“Public safety erased”

- ❖ Local newspapers enhance the role of the balance sheet as an **accountability device**. [▶ Budgets](#)

Municipal elections

- ❖ Elections are held every 5 years, majority premium (60% of council seats)
- ❖ New elections are called if more than half of the council or the mayor resigns.
- ❖ Not all municipalities have the same schedule:
 - ❖ In 1946, elections were held, in different periods of the year, to replace war councils.
 - ❖ During the following decades, premature terminations and law changes caused some municipality to call early elections and start their own cycle.
 - ❖ Today, there are **five groups**.

Frequency of Italian municipal elections

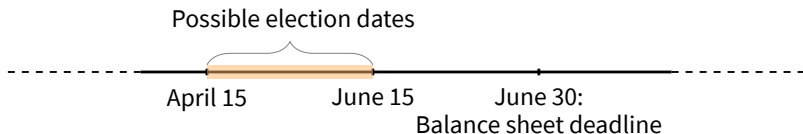


Municipal elections in each year [▶ Descriptives groups](#)

Elections and balance sheet disclosure

- ❖ Municipal elections are held every year on a Sunday in the period April 15 to June 15.

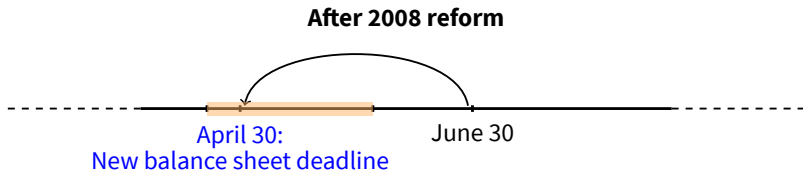
Before 2008 reform



- ❖ Before 2008, voters and the opposition did not have access to the balance sheet of the previous year before elections.

The effect of the reform

- ❖ The reform changed the balance sheet deadline from June 30 to April 30.



- Since elections are held in the period April 15 to June 15, the probability that the balance sheet is disclosed before elections rose substantially.

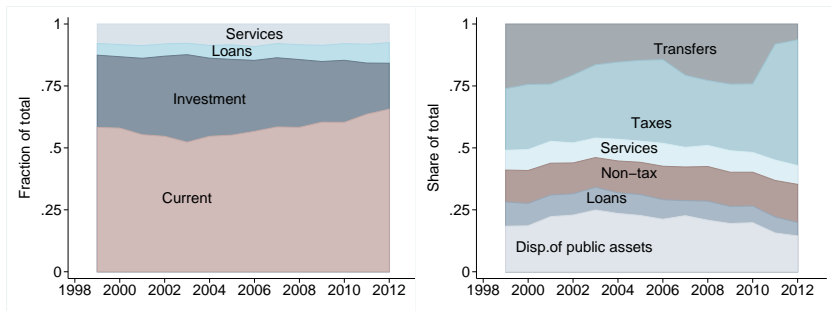
Data description

Dataset description

- Panel of 6,536 Italian municipalities (excluding special regions) for the period 1999-2012.

Balance sheet data

- Municipal expenditure and revenues by categories



(a) Expenditures

(b) Revenues

Construction of the dataset - continued

Geographical characteristics

- ❖ Data from the national statistical office (ISTAT) on population, density, surface, altitude, proximity to the sea, province capital.

Political data

- ❖ Data on election outcomes (vote shares, re-elections), mayors' identity, experience and characteristics (education, gender, term limited).

Local media

- ❖ Data on local newspaper sales by province, for 2011, from ADS.

Empirical analysis

Empirical specification

$$y_{it} = \alpha + \beta'_1 \mathbf{d} + \beta'_2 \mathbf{d} \cdot Post_t + \gamma' X_{it} + \delta_t + \mu_i + \epsilon_{it},$$

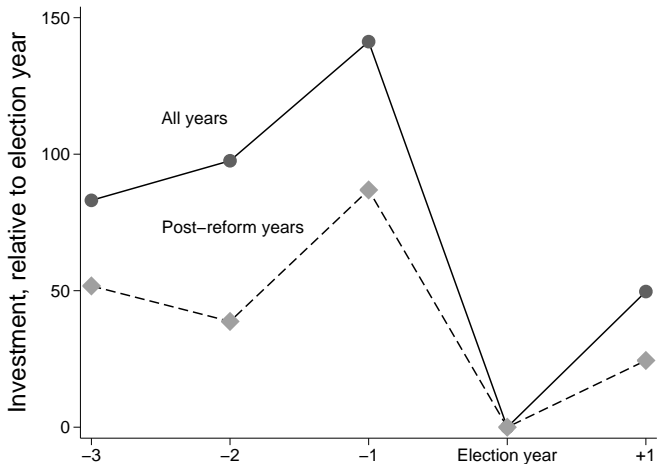
- ❖ y_{it} : investment expenditures per capita in year t ,
- ❖ $\mathbf{d} = [d_{t-3}, d_{t-2}, d_{t-1}, d_{t+1}]'$: indicators for three, two, one year before election and one year after: baseline is the election year,
- ❖ $Post_t$: indicator for years after 2008,
- ❖ X_{it} : municipality (e.g. population, density) and mayor characteristics (age, education, term limited indicator, vote share), and an indicator for early termination.

$$y_{it} = \alpha + \beta_1' \mathbf{d} + \beta_2' \mathbf{d} \cdot Post_t + \gamma' X_{it} + \delta_t + \mu_i + \epsilon_{it},$$

- ❖ In a given calendar year, each group of municipalities is in a different year of the term.
- ❖ Identification of β_1 comes from comparing spending in the five groups.
- ❖ Identification of the effect of the reform, β_2 , comes from comparing groups in different years in the term before and after 2008.
- Similar to a diff-in-diffs where control and treatment groups change every year.

The spending cycle before and after the reform

Investment expenditures per capita over the term. [▶ Term limits](#)



Estimated coefficients. Includes controls, municipal and calendar year effects.

The effects of the reform on spending

Municipal budget cycle

- ❖ Sizeable cycle in investment spending: compared to election year, +20% two years before and +29% in pre-election years.
- ❖ Especially in visible categories: roads, parks, public housing.

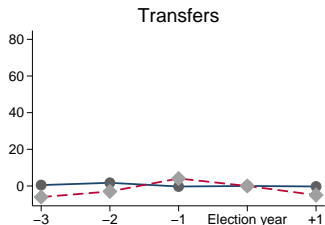
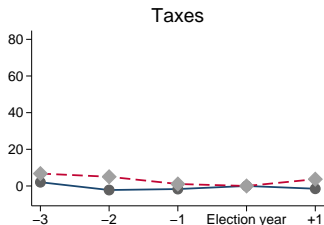
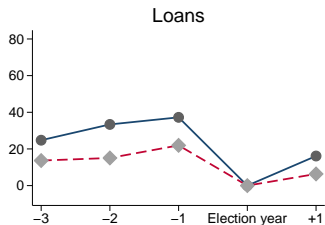
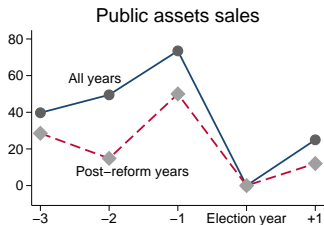
▶ Results

The effect of the reform

- ❖ After the reform, fluctuations in all years are reduced. Pre-election year increase in spending is reduced by one-third.
- ❖ How are these spending fluctuations financed?

The effect of the reform on revenues

Sources of financing, per capita, over the term



Estimated coefficients. Includes controls, municipal and calendar year effects.

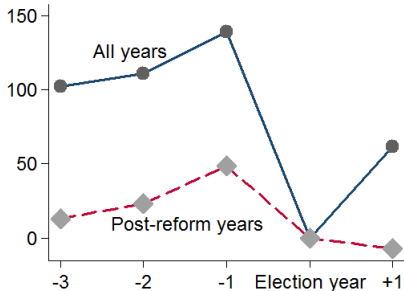
The role of local media

- ❖ Local newspapers are an important information device for voters and report news on balance sheet results.
- ❖ If information reduces the budget cycle, we should observe that the reform has a **stronger effect** in areas with more newspaper readers.
- ❖ Collect data on 2011 local newspaper sales, and split sample (sales above national median, sales below national median).

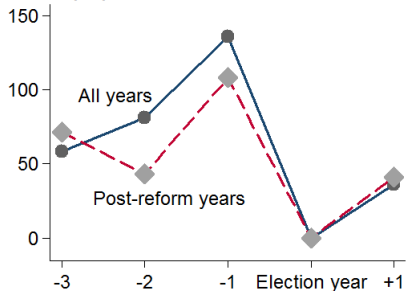
The effect of the reform and local media

Investment expenditures per capita over the term.

Newspaper sales > national median



Newspaper sales < national median



Estimated coefficients. Includes controls, municipal and calendar year effects.

- ❏ The effect of the reform is twice as large in provinces with high newspaper coverage.

Interpretation of the results

- Under the assumptions of the model, giving voters easier access to information on how expenditures are financed
 1. Increases the fraction of voters π that decides to be informed and, hence,
 2. Reduces the equilibrium level of spending.
- ❖ The empirical results are in line with model predictions:
 - ❖ After the reform, the increase in spending close to elections is substantially reduced.
 - ❖ This reduction is much larger in areas with more informed voters (i.e. in provinces with high local newspapers sales).

Spending and the probability of re-election

- ❖ Does spending help the incumbent get re-elected?
- ❖ Focus on mayors who ran again and run a probit:

$$f(R_i = 1 | S_i, X_i) = \Phi(\alpha + \beta' S_i + \gamma' X_i),$$

- ❖ S_i are spending variables measured in the pre-election year,
- ❖ X_i are controls: total spending during the term, municipality characteristics.

Spending and the probability of re-election

	Dep. variable: 1 if incumbent was re-elected					
	(1) β / SE	Elasticity	(2) β / SE	Elasticity	(3) β / SE	Elasticity
Incumbent vote share	1.47*** (0.17)	0.31***	1.35*** (0.17)	0.28***	1.38*** (0.17)	0.29***
Runner-up vote share	-0.09 (0.20)	-0.01	-0.09 (0.20)	-0.01	-0.08 (0.21)	-0.01
Cur. exp. in pre-elect. y	0.01 (0.01)	0.02	-0.00 (0.01)	-0.00	-0.01 (0.01)	-0.02
Inv. exp. in pre-elect. y	0.01*** (0.00)	0.02***	0.01*** (0.00)	0.02***	0.01** (0.00)	0.02**
Deficit in pre-elect. y	-0.01 (0.02)	-0.00	-0.01 (0.02)	-0.00	-0.00 (0.02)	-0.00
Total exp. in the term	-0.00 (0.00)	-0.02	-0.00 (0.00)	-0.02	0.00 (0.00)	0.00
Mean of dep. var	0.76		0.76		0.76	
Controls	Y		Y		Y	
Region Effects	N		Y		Y	
Electoral year Effects	N		N		Y	
<i>Pseudo-R</i> ²	0.08		0.08		0.09	
Obs.	6429		6429		6429	

Robustness checks

Parallel trend checks

1. Include municipality-specific linear trends,
2. Control for municipality-specific quadratic trends estimated pre-reform,
3. Interact baseline (2007) characteristics with a linear trend or time dummies,
4. Exclude each of the five groups from estimation, one at a time.

Excluding each group from estimation

	Drop 1999	Drop 2000	Drop 2001	Drop 2002	Drop 2003
3 year bf. elect.	83.9*** (15.86)	86.3*** (9.97)	80.8*** (13.37)	86.3*** (10.89)	83.5*** (10.35)
2 years bf. elect.	91.1*** (14.69)	95.0*** (9.50)	102.7*** (11.63)	105.1*** (10.69)	96.6*** (9.65)
1 year bf. elect.	119.3*** (16.02)	136.9*** (12.29)	138.2*** (15.66)	155.1*** (14.38)	146.5*** (13.17)
1 year aft. elect.	54.4*** (14.13)	43.9*** (10.70)	44.1*** (11.44)	65.1*** (11.27)	54.4*** (10.80)
3 year bf. elect.*Post	-36.4 (24.31)	-33.8** (16.14)	-36.2* (20.50)	-34.5** (16.97)	-29.6* (16.29)
2 years bf. elect.*Post	-60.5*** (23.42)	-55.5*** (15.98)	-76.1*** (18.78)	-63.4*** (18.21)	-57.3*** (16.05)
1 year bf. elect.*Post	-46.1* (24.28)	-55.6*** (17.62)	-45.9** (20.19)	-67.6*** (19.48)	-54.3*** (18.04)
1 year aft. elect.*Post	-53.2*** (20.56)	-20.7 (16.93)	-15.2 (18.13)	-39.7** (18.04)	-24.0 (16.91)
Mean of dep. var	489.8	489.9	485.1	492.3	492.0
Controls	Y	Y	Y	Y	Y
Year Effects	Y	Y	Y	Y	Y
Region Effects	N	N	N	N	N
Municipality Effects	Y	Y	Y	Y	Y
R ²	0.40	0.39	0.40	0.39	0.39
Obs.	26893	81427	71639	76967	82234

Robustness checks

Instrumenting the cycle

- ❖ Mayors might anticipate the reform and resign earlier to avoid its effects.
- ❖ This causes sorting into the five groups of municipalities and potentially biases results.
- ❖ To exclude this possibility, construct a “theoretical” election calendar, projecting 5-year terms ahead for each group.
- ❖ Construct new indicators d_{t-3} , d_{t-2} , d_{t-1} , d_{t+1} for year of the term, and i) use them directly or ii) as an instrument for the original ones.

Adding a lag

- ❖ Add one lag of investment expenditures as control.

Other robustness checks

	Using exog. elections		Adding a lag
	As regressors	As IV	Add a lag
3 years before election	69.8*** (9.74)	75.1*** (10.4)	87.9*** (10.5)
2 years before election	87.9*** (9.63)	94.0*** (9.79)	103.3*** (10.7)
1 year before election	132.3*** (12.7)	141.4*** (12.9)	134.4*** (12.4)
1 year after election	41.4*** (11.1)	44.6*** (10.9)	69.3*** (11.5)
3 years before elect.*Post	-29.7* (15.7)	-25.7 (18.0)	-33.0** (16.7)
2 years before elect.*Post	-51.3*** (16.0)	-48.2*** (18.2)	-55.8*** (17.9)
1 year before elect.*Post	-72.3*** (17.9)	-66.9*** (19.8)	-45.2*** (17.3)
1 year after elect.*Post	-31.9* (17.1)	-33.0* (18.9)	-31.1* (17.3)
Investment exp. t-1			0.094*** (0.014)
Controls	Y	Y	Y
Year Effects	Y	Y	Y
Region Effects	N	N	N
Municipality Effects	Y	Y	Y
R ²	0.39	0.03	
Obs.	84537	84533	75360

Conclusions

Concluding remarks

- ❖ Empirical study of the effect of information on the budget cycle.
- ❖ Exploit a reform that required all Italian municipalities to disclose their balance sheet to voters before elections.

Budget cycle

- ❖ In the pre-electoral year, investment spending is **29% higher** than in the year of election.
- ❖ This increase is concentrated in visible categories and financed with sales of public assets and borrowing.

The effect of the reform

- ❖ After the reform, the pre-electoral increase is **reduced by one third**.
- ❖ The effect of the reform is twice as strong in areas with more local newspaper readers.

Appendix

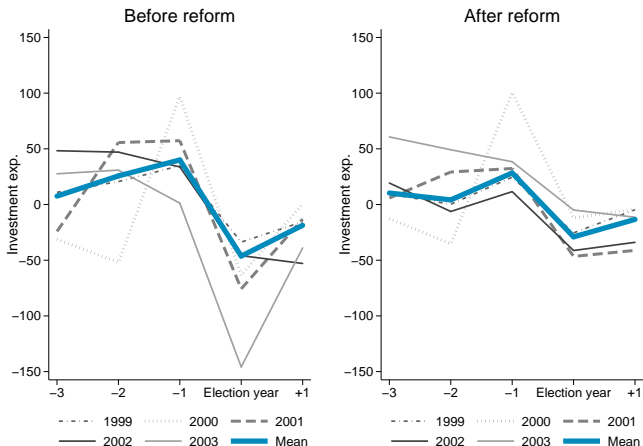
Summary statistics by groups

[▶ Back](#)[▶ Trends](#)

	1999	2000	2001	2002	2003
Investment expenditures	488.1 (716.4)	480.1 (781.9)	510.9 (737.7)	460.4 (705.9)	414.7 (561.5)
Municipalities					
Population (tho.)	4.9 (13.9)	12.6 (23.9)	12.8 (100.4)	13.5 (32.9)	11.8 (21.9)
Surface (km ²)	29.7 (36.8)	48.2 (71.3)	38.7 (68.5)	48.3 (60.4)	33.6 (32.8)
Pop. density (inhab/km ²)	254.3 (486.3)	534.1 (1166.2)	352.1 (689.4)	535.1 (1097.0)	566.5 (994.3)
Experience (terms)	1.5 (0.7)	1.3 (0.5)	1.4 (0.6)	1.4 (0.5)	1.4 (0.5)
Mayors					
Age of mayor	50.6 (9.8)	50.0 (9.7)	50.5 (9.7)	50.7 (9.5)	49.4 (9.3)
Male	0.9 (0.3)	0.9 (0.3)	0.9 (0.3)	0.9 (0.3)	0.9 (0.2)
Years of schooling	14.1 (3.6)	15.2 (3.4)	14.8 (3.5)	15.3 (3.2)	15.2 (3.2)
Observations	61461	4088	14363	8580	2825

Checking the parallel trends assumption

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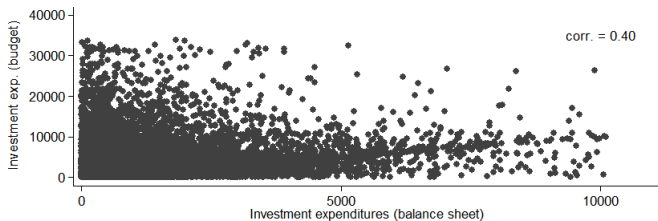
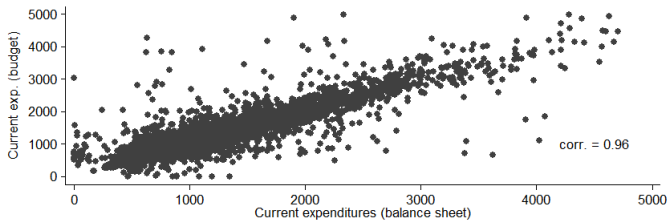


Budgets and balance sheet quantities

- ❖ If budgets (*ex-ante*) were a timely reliable source of information, the disclosure of the balance sheet would be of little use to voters.
- ❖ However, budgets are very often approved with great delay (after 2008, four out of five times even after elections!) and contain very little information on investment expenditures:
 - ❖ Investment expenditures are often grossly overestimated in the budget.
 - ❖ The correlation between investment expenditures in the budget and in the balance sheet is only 0.40.

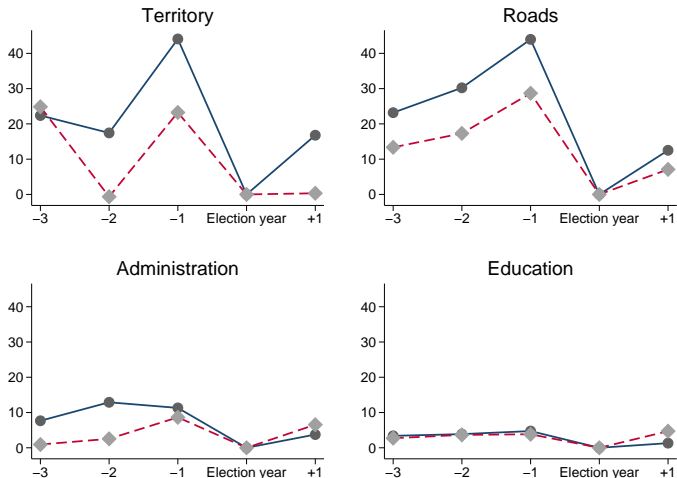
Budgets and balance sheet quantities

[▶ Back](#)



The effect on spending by categories [▶ Back](#)

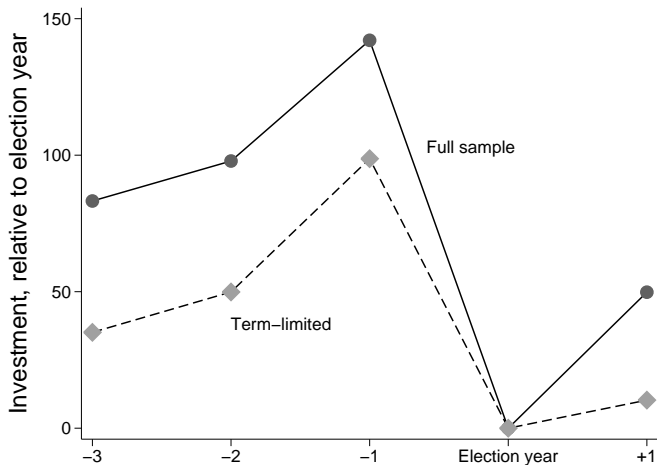
Expenditures by category, per capita, over the term



Estimated coefficients. Includes controls, municipal and calendar year effects.

The spending cycle in term-limited municipalities

Investment expenditures per capita over the term. [▶ Back](#)



Estimated coefficients. Includes controls, municipal and calendar year effects.