How much the Downs model of electoral competition explains the reality?

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Normative VS. Positive Public Economics

- **Positive Public Economics**: Analysis of how things really are (e.g., Does govt provided health care crowd out private health care insurance? Do higher taxes reduce labor supply?)
- **Normative Public Economics**: Analysis of how things should be (e.g., should the government intervene in health insurance market? how high should taxes be?, etc.)

Positive Public Economics is ***necessary*** for normative Public Economics

Normative VS. Positive Public Economics

- In the past, public economists only studied *normative* questions. The usual starting point was an ideal, benevolent goverment whose only aim is to maximize the welfare of individuals in the society.
  - This is an assumption that does not appear to be consistent with reality.
  - It is not necessarily the case that policymaker act to maximize the society's welfare. Actually, even if some politician would like to do so, incentives genderated by the electoral competition may limit this politician.
- This is why *political economy* is a very positive-oriented discipline. We are very interested how do political agents in the economy actually behave; not much on how *economists think they should behave*.
- Formal theoretical models are essential to understand the incentives that each agent faces, but we are also interested in understanding whether models can actually explain the reality. Also, many interesting questions are very hard to be answered without looking at real-world data.

Correlation $\neq$ causality

Definition

Correlation: Two economic variables are correlated if they move together

- **Example**: height and weight across individuals

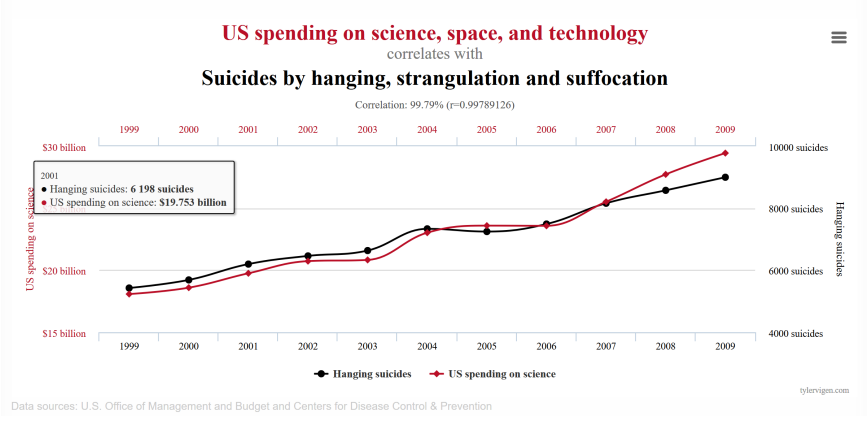
Definition

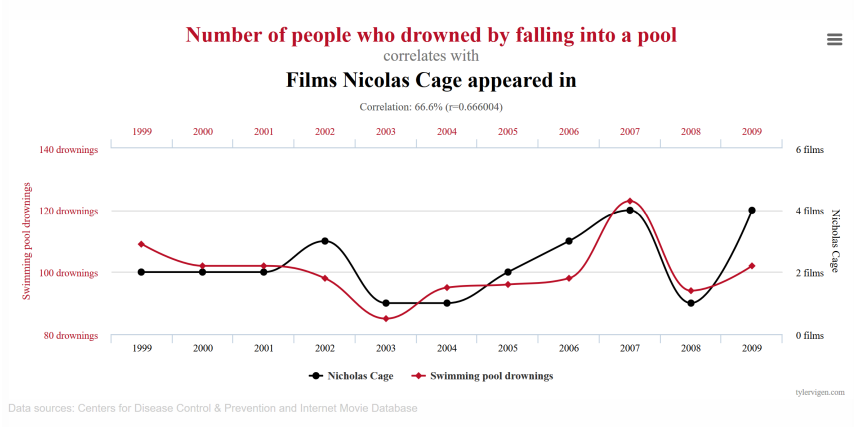
Causality: One economic variable causes another if the movement of the former variable causes a movement of the other variable

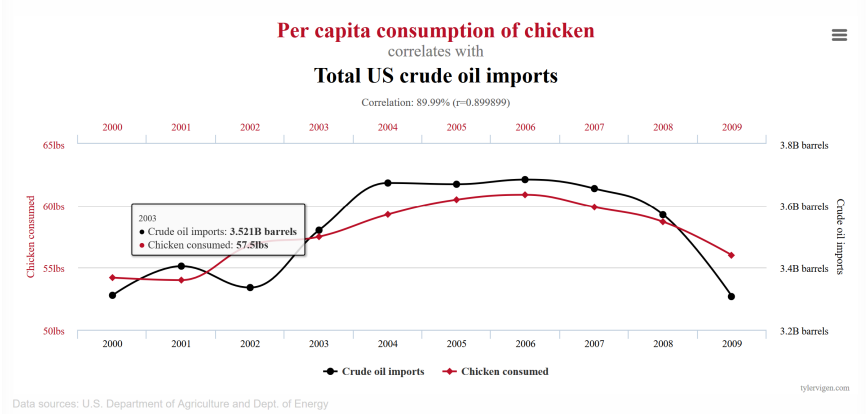
- **Example**: good nutrition as an infant increases adult height

Correlation $\neq$ causality

- There are many examples where causation and correlation can get confused
- In statistics, this is called the *identification problem*: given that two series are correlated, how do you identify whether one series is causing another?


US spending on science, space, and technology
correlates with
Suicides by hanging, strangulation and suffocation
Correlation: 99.79% (r=0.99789126)
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
$30 billion
$20 billion
$15 billion
10000 suicides
8000 suicides
6000 suicides
4000 suicides
2001
Hanging suicides: 6 198 suicides
US spending on science: $19.753 billion
US spending on science
Hanging suicides
Hanging suicides
US spending on science
tylervigen.com
Data sources: U.S. Office of Management and Budget and Centers for Disease Control & Prevention


Number of people who drowned by falling into a pool
correlates with
Films Nicolas Cage appeared in
Correlation: 66.6% (r=0.666004)
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
140 drowningss
120 drowningss
100 drowningss
80 drowningss
Swimming pool drowningss
6 films
4 films
2 films
0 films
Nicholas Cage
Nicholas Cage
Swimming pool drowningss
tylervigen.com
Data sources: Centers for Disease Control & Prevention and Internet Movie Database


Per capita consumption of chicken
correlates with
Total US crude oil imports
Correlation: 89.99% (r=0.899899)
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
65lbs
60lbs
55lbs
50lbs
Chicken consumed
3.8B barrels
3.6B barrels
3.4B barrels
3.2B barrels
Crude oil imports
2003
Crude oil imports: 3.521B barrels
Chicken consumed: 57.5lbs
Crude oil imports
Chicken consumed
tylervigen.com
Data sources: U.S. Department of Agriculture and Dept. of Energy

The identification problem

- The attempt to interpret a correlation as a causal relationship without sufficient thought to the underlying process generating the data is a common problem.
- For any correlation between two variables A and B, there are three possible explanations, one or more of which could result in the correlation:
  1. A is causing B
  2. B is causing A
  3. Some third factor is causing both
- The general problem that empirical economists face in trying to use existing data to assess the causal influence of one factor on another is that one cannot immediately go from correlation to infer a causal relationship.

Regression analysis

- Suppose a relationship of the form

$$Y_i = \alpha + \beta X_i + u_i$$

  for many individuals $i = \{1, ..., N\}$
- X_i is the independent variable
- Y_i is the dependent variable
- β is the coefficient that measures the causal effect of X_i on Y_i
- u_i is a random error term (captures variations in Y_i not related to X_i)
- The simplest way to estimate β is linear estimation (i.e., assuming the relation between Y_i and X_i to be linear) through Ordinary Least Square regression (OLS).

$$\hat{Y}_i = \hat{\alpha} + \hat{\beta} X_i + \hat{u}_i$$

Bias of OLS estimator

The OLS estimator $\hat{\beta}$ is **biased** (and inconsistent), which means that it does not identifies the true population parameter β, in four main cases:

1. **Functional mis-specification**: The actual relatioship between Y and X is not linear
2. **Omitted variables**: The actual relationship is spouriuos and there is a third variable affecting both Y and X
3. **Measurement error**: the variable Y is mismeasured and the error in not random (i.e., the measurement error is correlated with X) or the variable X is mismeasured (also if the measurement error is random)
4. **Reverse causality**: Y causes X and at the same time X causes Y

- In those cases, we generally refer to as **endogeneity**. Formally, $\mathbb{E}(u_i|X_i) \neq 0$

Correlation $\neq$ causation every time one (or more) of these issues is present

Formalizing the identification problem

- Treatment is a binary random variable $X_i = \{0, 1\}$

$$\mathbb{E}(Y_i|X_i = 1) = \alpha + \beta + \mathbb{E}(u_i|X_i = 1)$$

and

$$\mathbb{E}(Y_i|X_i = 0) = \alpha + \mathbb{E}(u_i|X_i = 0)$$

- The difference $\mathbb{E}(Y_i|X_i = 1) - \mathbb{E}(Y_i|X_i = 0)$ is therefore equal to

$$\mathbb{E}(Y_i|X_i = 1) - \mathbb{E}(Y_i|X_i = 0) = \beta + \mathbb{E}(u_i|X_i = 1) - \mathbb{E}(u_i|X_i = 0)$$

- We are able to identify the true causal effect β as the difference between the average outcome for treated and untreated individuals if and only if $\mathbb{E}(u_i|X_i = 1) - \mathbb{E}(u_i|X_i = 0) = 0$
- In what circumstances we can be confident that $\mathbb{E}(u_i|X_i = 1)\mathbb{E} - (u_i|X_i = 0) = 0$?

Plan of the lecture

(1) Recap of the Downs model of electoral competition
(2) Empirical evidence in support/contrast Downs model
   - Do parties really offer the same policies?
   - What happens when we modify the *identity* of the median voter?

The Downsian model of electoral competition (recap)

- 2 candidates (or 2 parties) whose unique aim is winning the elections (office-motivated)
- Candidates are either office-motivated (i.e., they care about being elected in order to receive an exogenous wage) or policy-motivated (i.e., they care about the policy choice that society will adopt after the election)
- Commitment rule: what a candidate promises is implemented if elected; the proposals are announced at the same time before the election
- Competition is only along one dimension, as for example the level of public spending
- Every voter has single-peaked (unimodal) preferences on public spending
- Majority voting: the candidate that receives most votes is elected (coin toss in case of a tie)
- Voters vote for the proposal closest to their bliss point

The Downsian model of electoral competition (recap)

- If all the assumptions are satisfied, Downs model yields a very clear prediction
- Both parties (it does not matter whether office/policy motivated) will commit to the same policy platform, which is the platform preferred by the median voter
- Does this theoretical prediction finds some support in the data?

Empirical evidence on the validity of the Downsian model of representative democracy

- While the median voter model is a potentially powerful tool of political economy, its prediction rests on some strong assumptions that may not be valid in the real world
- A large political economy literature has tested the median voter model by assessing the role of voter preferences on legislative voting behavior relative to other factors such as party or personal ideology
- In principle, candidates should adjust their position toward the median voter to win the election
  - Elected officials should represent the view of the median voter in their district

Testing the validity of the Downs' result

- One of the consequences of Downs' theoretical prediction is that it should not matter whether voters choose a left-wing party or a right-wing party to hold government.
- This because they are both subject to the judgement of the same voters (including the median voter) and henceforth they must commit to the same platform in order to be elected
- Testing this theory in the data sounds very easy. Let's try and see what are the main challenges.

Testing the validity of the Downs' result

- Suppose we have information on the party affiliation of the mayor in all municipalities in Italy and we have information on the tax rate of the local personal income tax
- If parties are policy-motivated, we would expect the left-wing being, on average, more favourable to high tax rates than the right-wing
- However, Downs predict that right-wing mayors and left-wing mayors will adopt the very same policy

Testing the validity of the Downs' result

- We could estimate:

$$TaxRate_m = \alpha + \beta Left_m + u_m$$

  where $Left_m$ is 1 if the mayor belongs to the left-wing coalition and zero otherwise
- A positive (negative) and statistically significant $\hat{\beta}$ would indicate that the local tax rate is higher (lower) in municipalities where the mayor belongs to the left-wing than in municipalities where the mayor belongs to the right-wing
- Downs prediction: $\beta = 0$.

Testing the validity of the Downs' result

- Suppose we estimate a coefficient $\hat{\beta} = 0.1$. Can we conclude that the Downs model does not apply to the electoral competition that takes place in Italian municipalities?
- Short answer: NO!. Long answer:
- Our OLS estimator is very likely **biased** and **inconsistent** because $\mathbb{E}(u_m|Left_m) \neq 0$.
  - Omitted variable bias
  - Reverse causality
- In this particular context, there is an obvious omitted variable bias, which is the voters' preferences: different voters live in different municipalities, and may demand different tax rates. Our coefficient would just reflect that **municipalities in which the left-wing is in power are not comparable to municipalities in which the right-wing is in power**
  - The median voter is not the same across municipalities!

Are legislators ideologoues or the agents of constituents? (Poole and Rosenthal – 1996 EER)

- Evidence from US Senate:
  - 2 senators for each state in US senate: represent the same constituency and hence should vote in the same way in the senate if median voter model is right
- Empirical results: When a state has 1 republican senator and 1 democratic senator, those 2 senators vote very differently in the senate (contradicts the median voter model)

Do voters affect or elect policy? Evidence from the US House (Lee, Moretti, and Butler – 2004, QJE)

Introduction

- Research question
  - Does electing a Democratic vs. a Republican candidate affects how the elected representative votes once in the House?
- Empirical challenge
  - Disentangling voters' with parties preferences: more conservative votes are cast by representatives of districts where the median voter is more conservative
  - It is not possible to observe what **would have happened**, in the same district in the same year, had the voters selected a candidate belonging to the party that lost the election

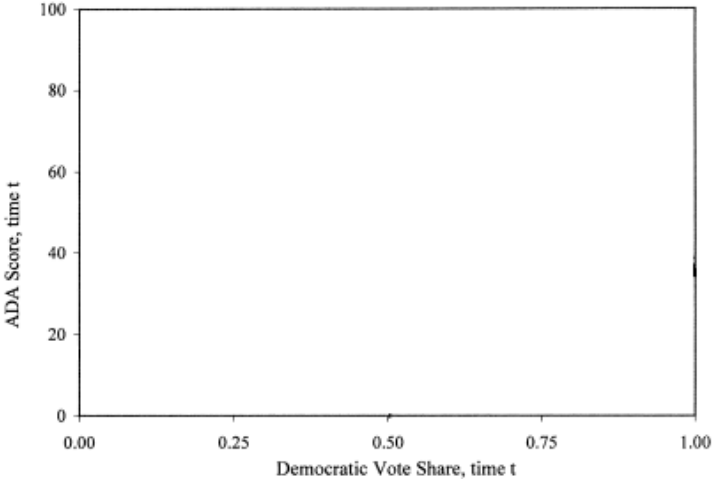
Do voters affect or elect policies? Evidence from the US House (Lee, Moretti, and Butler – 2004, QJE)

Empirical strategy

- Lee, Moretti, and Butler (2004) is the first example of what today is considered as one of the gold standard techniques in political economy: **close elections analysis**
- Idea: even if it is true that more conservative representatives are elected by more conservative voters (and vice-versa) there must be **some districts in which around 50% of citizens are Republican and around 50% of citizens are Democrats**
- In those districts, whether one party just receives one more votes and wins or gets one fewer votes and loses can be assumed to be «as good as random»
- In turn, we can estimate the effect of party affiliation on policy outcome by comparing a (barely) Blue and a (barely) Red district, holding voters' preferences constant

Do voters affect or elect policies? Evidence from the US House (Lee, Moretti, and Butler – 2004, QJE)

Main result



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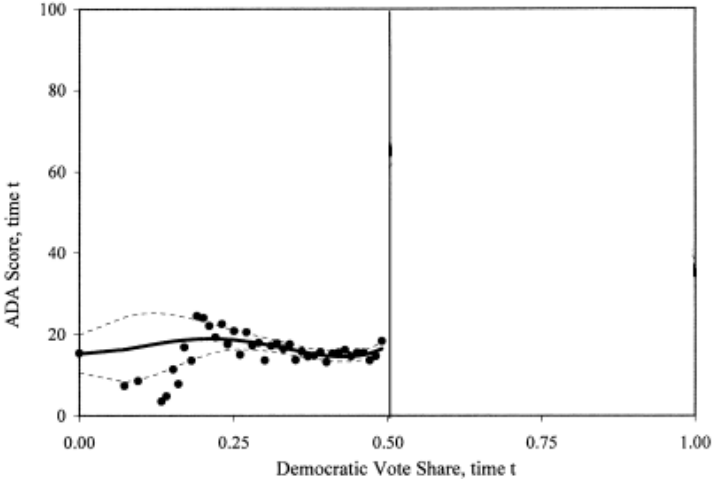

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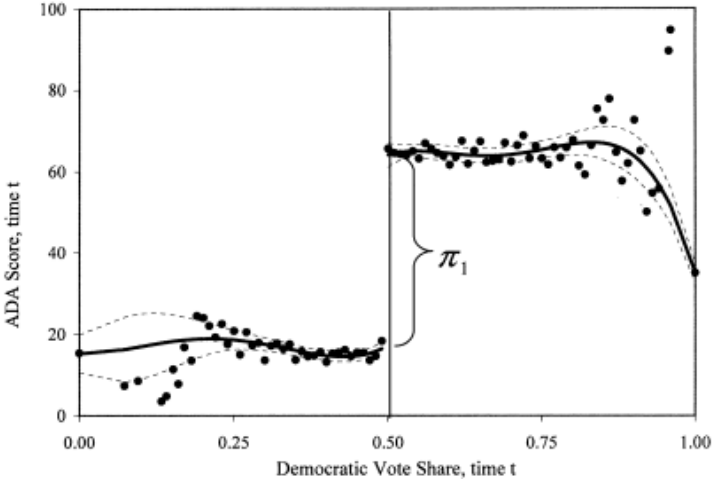
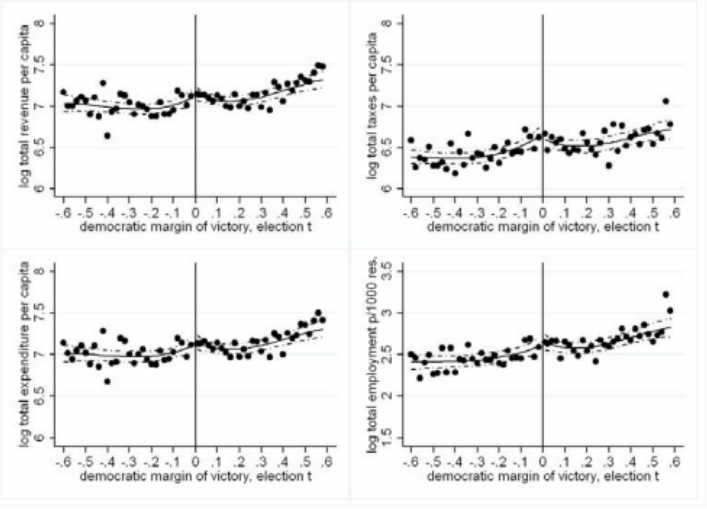


Do Political Parties Matter? Evidence from U.S. Cities (Ferreira and Gyourko – 2009, QJE)



Furher empirical tests inspired by Downs' model

- Another important feature that we can try to test with an analogous approach is whether individual characteristics of the elected politician (beyond the party affiliation) matter for the implementation of policy outcomes.
- For example, research has shown that women are, on average, more left-leaning than men. Is it also the case that female officials implement more left-leaning policies than male officials?
- Another example are the quality traits of politicians, such as education or previous experience. Do well educated politicians perform better than the others?

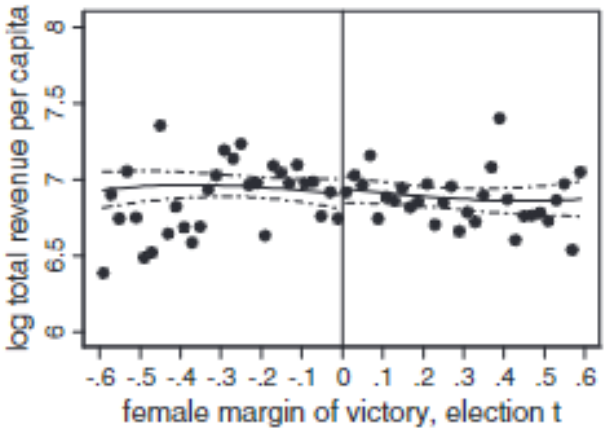
Does gender matter for political leadership? The case of US mayors (Ferreira and Gyourko – 2014, JPubE)

Introduction

- Research question
  - Does electing a female vs. a male mayor affects the policy implemented by the municipality administration?
- Empirical challenge
  - Disentangling voters' with individual politicians' preferences: women might be more likely to be elected by voters that prefer more progressive policies
- Empirical strategy
  - **Close-election Regression-discontinuity resign**

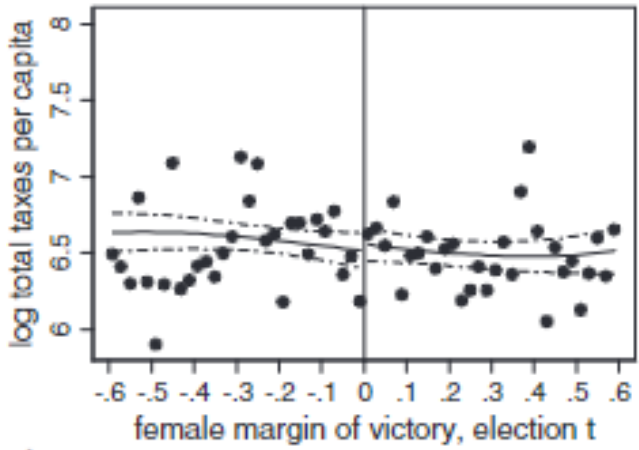
Does gender matter for political leadership? The case of US mayors (Ferreira and Gyourko – 2014, JPubE)

Results 1: Collected revenues do not depend on the mayor's gender



Does gender matter for political leadership? The case of US mayors (Ferreira and Gyourko – 2014, JPubE)

Results 2: Taxes levied do not depend on the mayor's gender



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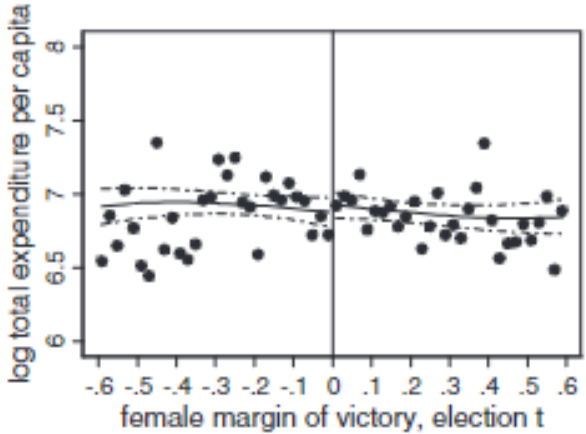
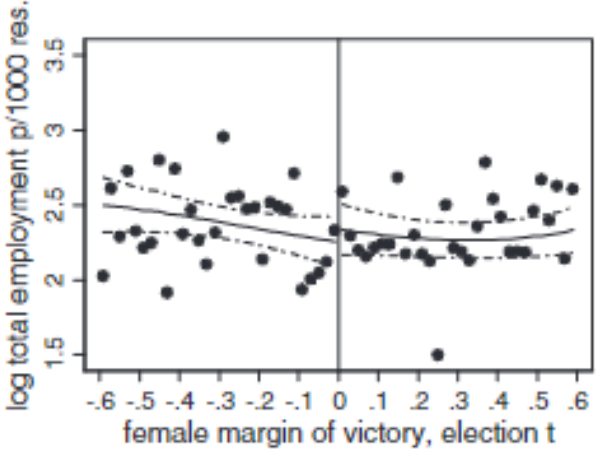
Results 3: Total expenditures do not depend on gender



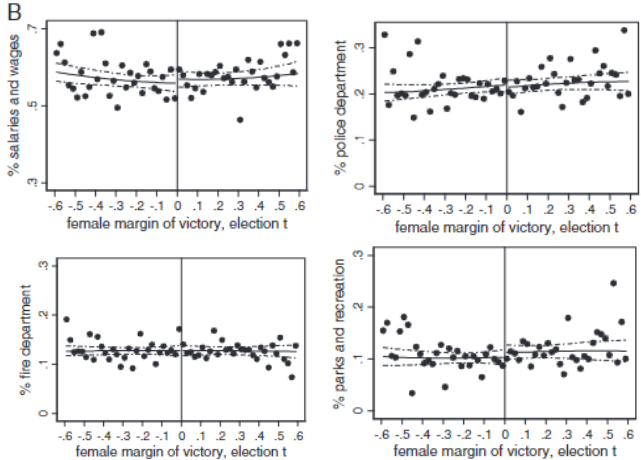
Does gender matter for political leadership? The case of US mayors (Ferreira and Gyourko – 2014, JPubE)

Results 4: Public employment does not depend on the mayor's gender



Does gender matter for political leadership? The case of US mayors (Ferreira and Gyourko – 2014, JPubE)

Results 5: Composition of public spending does not depend on the mayor's gender



A general critique to this type of empirical studies

- The main empirical issue with this type of studies is that other individual characteristics of politician are not necessarily balanced around the threshold
- For instance, suppose that female politicians only run for office in the Democratic Party. Then, gender of the politician will be unbalanced at the threshold if we compare districts in which the left wing wins by a narrow margin and districts in which the right wing wins by a narrow margin
- The problem is analogous if we are interested in studying whether men and women implement different policies. We would then have a lack of balancing in party affiliation
- No easy solution for this problem, and the literature still debates on whether this is a problem of **identification** or a problem of *interpretation* of the results. See Marshall (2022, AJPS) if interested. My take is that one should be transparent in documenting the lack of balancing, still this technique is the first-best that we have in this field of study at the moment

A note on external validity

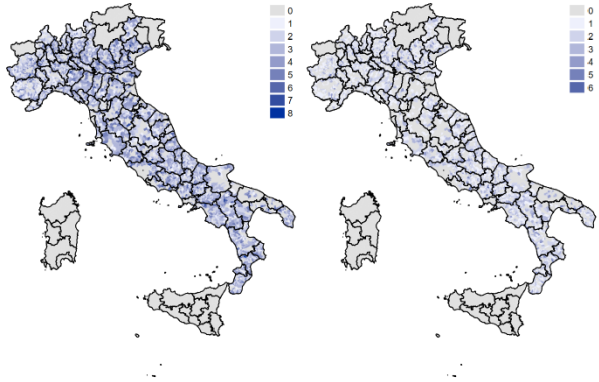
- Close-election analysis only allows us to draw conclusion about a particular set of districts/municipalities (and their ruling politicians). Namely, the very competitive districts of a country
- We do not know whether the same results would hold in different contexts, for instance areas of the country in which the median voter is more polarized
- This is a problem of **external validity**: finding consistent estimates in a sample does not necessarily inform us that the same holds out-of-sample
- However, it is important to always remember that **internal validity** is a necessary condition for external validity: not using the close-election technique and instead focusing on all politicians from all areas does not guarantee any of the two!

An example from our current research agenda

- With Prof. Bordignon and Prof. Gilberto Turati, we are studying how electing a mayor that holds a college degree affects the probability that municipalities in Italy fall into bankruptcy.
- We apply a close-election technique and estimate a regression-discontinuity design, comparing municipalities in which a college graduate barely wins the election and municipalities in which a college graduate barely loses the election
- Let us see in the next slides the problems I was just mentioning:
  1. Municipalities in which we have a close election are not necessarily representative of all municipalities across the country
  2. Politicians holding a college degree are different w.r.t. politicians without a college degree

An example from our current research agenda

External validity



(a) All mixed-college elections

(b) Close mixed-college elections

An example from our current research agenda

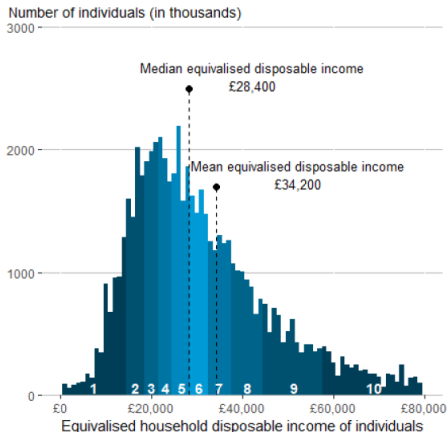
Differences in other individual characteristics

Table B.3: Effect of electing a mayor with college degree on other mayor's individual characteristics

	(1) Age	(2) High Status	(3) Female	(4) Experience	(5) Incumbent
College Mayor	-3.425***	0.150***	0.064***	-0.389***	-0.003
	(0.538)	(0.017)	(0.017)	(0.063)	(0.019)
Robust confidence interval	[-4.753;-2.370]	[0.107;0.187]	[0.032;0.105]	[-0.541;-0.260]	[-0.043; 0.043]
Bandwidth	0.104	0.0850	0.0890	0.128	0.0980
Eff. observations	8146	6879	7173	9387	7803
Observations	14848	14848	14848	14848	14,848
Control mean	50.75	0.0460	0.0950	1.575	0.310
Controls					
Province × Election Date FE					

Median voter and income distribution

- For many choices it is reasonable to expect that the level of income plays a major role in defining the preferences of individuals
- The income distribution in the population is usually such that the income of the median voter is lower than the average income



Median voter and income distribution

- Moreover, election participation is far from 100%. What matters is who is the median – among the individuals who vote
- Historically, not all individuals were allowed to vote
  - For instance, women obtained the right to vote in Italy only in 1946
- Another testable prediction that we can draw from the Downs' model is that extending the right to vote to poor individuals, politicians should move their platforms towards more *leftist* policies.
- Identification problem: the decision to modify the demographics of the voting population is likely endogenous (a politician will do so if she expects to be rewarded by the new voters)

Did Women's suffrage change the size and scope of government? (Lott and Kenny 1999, JPE)

- Lott and Kenny study whether assigning the right to vote to women contributed to the growth of the US public sector
- The key empirical challenge is that observing that the public sector grew in size shortly ater the extension of voting right does not identify a causal relationship
- There might be reverse causality or other omitted variables at work

Did Women's suffrage change the size and scope of government? (Lott and Kenny 1999, JPE)

- Solution: instead of looking at the growth of US federal budget and women's voting rigth in national election, they examine US states

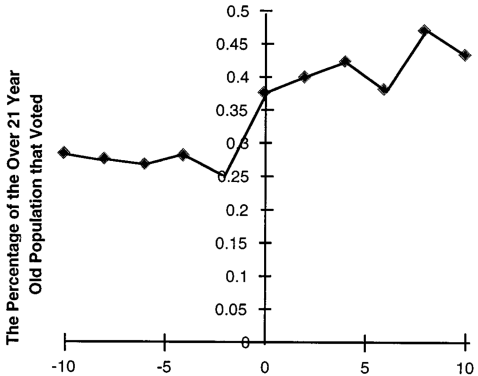
Twenty-nine states gave women the right to vote before the Nineteenth Amendment to the Constitution was approved in 1920, with seven of the remaining 19 approving the amendment and 12 having women's suffrage imposed on them. Women obtained the right to vote in four states even prior to the turn of the century, in eight states between 1910 and 1914, and in 17 states in 1917–19. By 1940, the end of our sample, women had been voting in 12 states for at least 26 years and in four states for at least 44 years.

Did Women's suffrage change the size and scope of government? (Lott and Kenny 1999, JPE)

- The staggered adoption of voting right reforms give the authors the opportunity of comparing the growth of government in States that gave women the right to vote earlier vs. late
- This is one example from 25 years ago of the method that today we use to call *staggered difference-in-differences*
- Moreover, states that enfranchised women in later years did not do that wishfully: they were forced by a Constitutional reform approved at the federal level

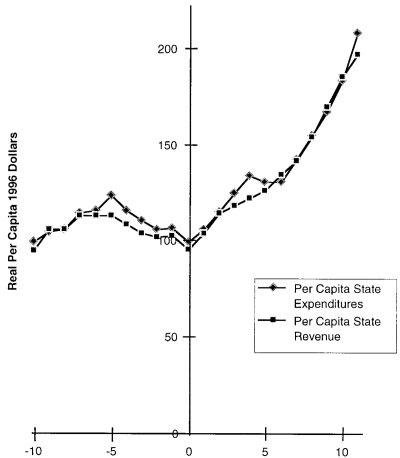
Did Women's suffrage change the size and scope of government? (Lott and Kenny 1999, JPE)

- The first step is documenting that women indeed started to vote when the law allowed them to vote



Did Women's suffrage change the size and scope of government? (Lott and Kenny 1999, JPE)

- The reform actually modifies the composition of the voting population. Let's now see the impact on the size of the government



Women's Suffrage, Political Responsiveness, and Child Survival in American History (Miller 2008, QJE)

- Miller (2008) studies the same set of reform, applying a technique more similar to what we are currently using (at least, up to the very recent development in the metrics literature)
- The focus of the article is studying whether giving voting rights to women had an impact on health expenditures at the city level, and in turn on hygiene condition and child mortality
- Regression specification

$$ln(d)_{c,s,t} = \alpha + \beta v_{s,d} + \delta_y + \delta_c + \delta_s \times t + \varepsilon_{c,s,y}$$

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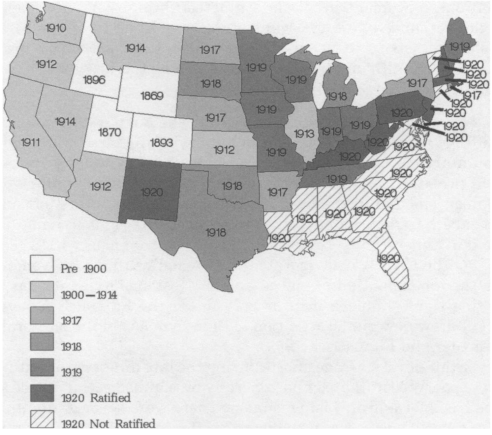

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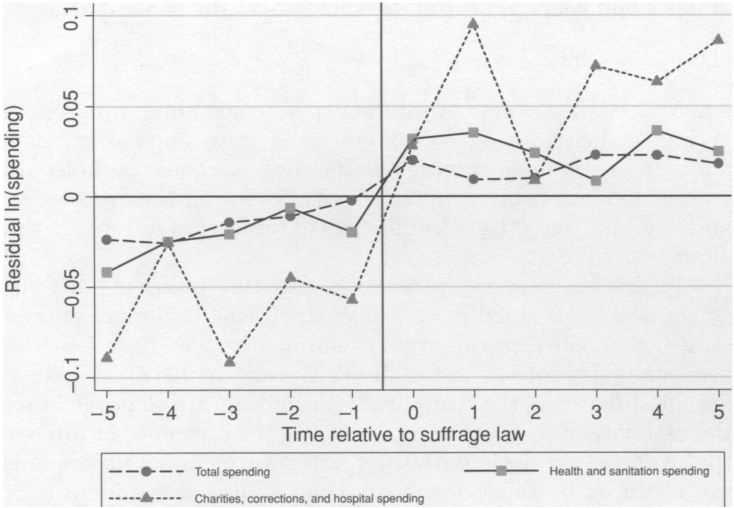
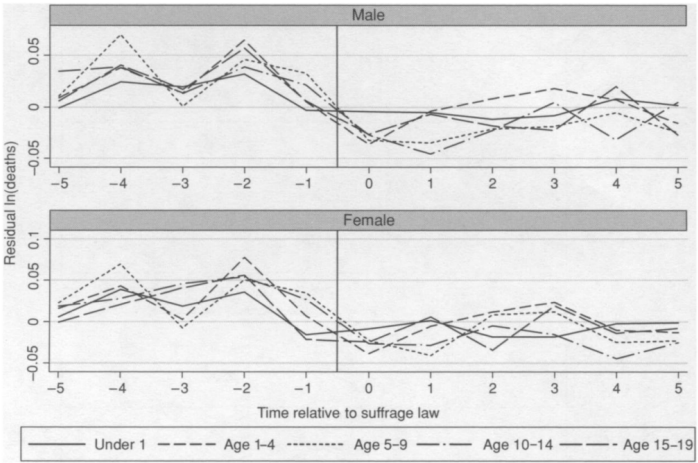


Women's Suffrage, Political Responsiveness, and Child Survival in American History (Miller 2008, QJE)



Voting technology, political responsiveness, and infant health: Evidence from Brazil (Fujiwara – 2015, Econometrica)

Introduction

- Research question
  - Does reducing the difficulty of casting a vote for undereducated people affect policy outcomes and children health?
- Empirical challenge
  - The decision to reduce the difficulty of casting a vote (disproportionately for undereducated people) can be endogenous to voters' preferences
- Empirical strategies
  (i) Regression-discontinuity design based on a population threshold
  (ii) Difference-in-differences

Voting technology, political responsiveness, and infant health: Evidence from Brazil (Fujiwara – 2015, Econometrica)

Background

- During the 1990s, 23 percent of Brazilian population was illiterate
- Originally a person had to write manually the name of the candidate and read written instruction
- In 1998, electronic voting was introduced in state elections, only for municipalities with more than 40500 inhabitants
- In 1992, electronic voting was extended to all municipalities

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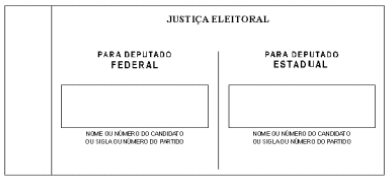
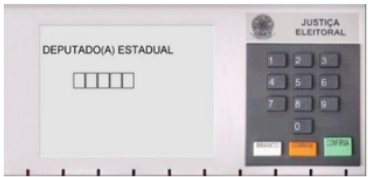
Background



Paper ballot



Initial screen of the voting technology

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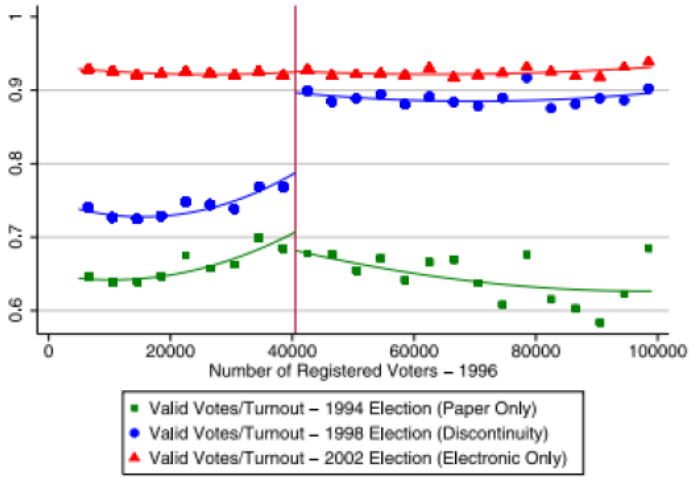
RD result



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RD result

TABLE III

TREATMENT EFFECTS OF ELECTRONIC VOTING, BY ILLITERACY RATE[a]

	Pre-Treat. Mean	IKBW {Obs.}	(1)	(2)	(3)	(4)
Panel A: Municipalities With Above-Median Illiteracy						
Valid Votes/Turnout	0.759	11,873	0.147	0.150	0.152	0.176
	(0.017)		(0.019)	(0.015)	(0.020)	(0.031)
N	—	—	116	279	103	49
Panel B: Municipalities With Below-Median Illiteracy						
Valid Votes/Turnout	0.799	11,873	0.092	0.113	0.096	0.089
	(0.018)		(0.020)	(0.016)	(0.022)	(0.032)
N	—	—	149	279	126	67
Test of Equality in TEs (p-Value)	—	—	0.049	0.090	0.056	0.054
Bandwidth	—	—	IKBW	20,000	10,000	5000

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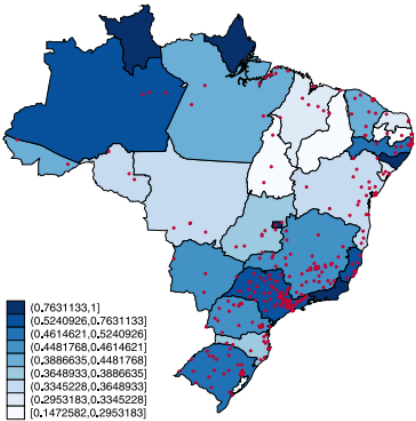
Heterogeneity by illiteracy rate



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Effect of electronic voting on policy outcomes

- States with an higher share of voters treated by electronic voting in 1998 experienced an higher growth rate of helthcare spending (% of total) in the 1998–2002 period (relative to 1994–1998 growth) than states with a lower share of treated voters
- In turn, the share of low-weight new births decreased more in states with an higher share of treated individuals than in states with a lower share of treated individuals