

Exam for the M. Sc. in Economics
University of Copenhagen
Political Economics, Fall 2015

3 hours

Answer only in English

No aids allowed

January 13th, 2016

For problems 1 and 2, write at most 10 lines of words per question (not counting pictures and equations). Thus, think first and be precise when writing.

1. Gender quotas were temporarily introduced in Italy in 1993, and were abolished in 1995 by the Constitutional Court. The law imposed that in candidates' lists neither gender could represent more than $2/3$ of the total number of candidates. Suppose you have data on electoral outcomes for each municipality and want to do an empirical analysis on the effects of gender quotas on representation by gender. You will take advantage of the fact that Italian municipalities do not have elections at the same time. Thus, there are two main groups of municipalities, those that had elections during the period 1993-1995 and thus were affected by the law on gender quotas (treatment) and those that did not have elections during the period 1993-1995 and thus were not affected by the law (control).

a. What method would you use to measure the causal effect of the law on female representation? Write down the specification, explain each variable in the specification. What is the coefficient that captures the causal effect of the law on the female representation?

b. What's the identification assumption of this method? Use words, write equations using the potential outcomes framework and draw a picture.

c. Suppose you find that gender quotas increase the number of elected women. However, we do not know if that will have an effect on policy outcomes. Since we do not have data on policies at the municipal level, we have to rely on theory to make predictions. If we use the median voter model, would it predict a change in policies due to the increased representation of women?

d. Would the answer to question c. be different if we instead used a citizen-candidate model? What do citizen-candidate models predict in this case? What is a key assumption for the predic-

tions of the citizen-candidate model?

2. Spain -and probably many other countries- has two different forms of democracies at the local level. National law determines that municipalities with 100 or more inhabitants follow a representative-democracy system, while those with fewer than 100 inhabitants use direct democracy. Under representative democracy, citizens elect a city council every four years, and the council decides on policy. Under direct democracy, policy is decided in open town meetings held four times a year, any individual eligible to vote (age 18 or older) may attend the meetings, and decisions are adopted by simple plurality rule. Suppose you want to understand the effect of direct democracy on public spending and local taxation.

a. What method would you use to measure the causal effect of direct democracy on public spending and local taxation? Write down the specification, explain each variable in the specification. What is the coefficient that captures the causal effect of direct democracy on public spending or local taxation?

b. What's the identification assumption for the method you would use? What evidence do you have to provide to know if the identification assumptions is likely to hold or not. Explain and draw pictures.

c. Suppose you find that direct democracy causes lower spending and taxation. Under direct democracy there is no secret ballot. Could that help explain the results? Argue why. Remember also that the paper by Baland and Robinson that we saw in class, "Land and Power: Theory and Evidence from Chile", presents evidence regarding the effects of the abolition of the secret ballot. After arguing why the secret ballot might be relevant to explain the effects of direct democracy on spending and taxation, describe the main findings of Baland and Robinson.

d. The Spanish law establishing direct democracy in municipalities was enacted in 1979 and has not changed since then. Suppose you do the analysis for the period comprising the first two rounds of local elections (1979-1983 and 1983-1987). For this period, all the evidence regarding the identification assumption looks good. However, after this first preliminary analysis you add data for the period 1987 to 1991 and find that, for this period, citizens in towns below the threshold have lower education. Does this invalidate any analysis for the period 1987-1991? Discuss.

3. Probabilistic Voting Model. Suppose there are two parties: $P = A, B$. Call π_P the party P vote share. The probability of party P winning the election is $p_P = \Pr[\pi_P \geq 1/2]$. Party P seeks to maximize $p_P R$, where R is exogenous rent from being in office. Voters are divided in three groups. Everybody in group J has the same income y^J . The following table describes the population shares

and income of each group:

Group $J =$	R	M	P
Population share	α^R	α^M	α^P
Income	$y^R >$	$y^M >$	y^P

such that average income y is $y = \sum_J \alpha^J y^J$.

Voters care about the public good, g , and ideology. Voter i in group J prefers party A if

$$W^J(g_A) > W^J(g_B) + \sigma^{iJ} + \delta$$

where:

- σ^{iJ} uniformly dist on $\left[-\frac{1}{2\phi^J}, \frac{1}{2\phi^J}\right]$ (density ϕ^J and mean 0)
- δ is uniformly dist on $\left[-\frac{1}{2\psi}, \frac{1}{2\psi}\right]$ (density ψ and mean 0).

Recall that a uniform distribution on $[a, b]$ has cumulative distribution function:

$$cdf = \begin{cases} 0 & \text{for } x < a \\ \frac{x-a}{b-a} & \text{for } x \in [a, b) \\ 1 & \text{for } x \geq b \end{cases}$$

- a. What are σ^{iJ} and δ ? How does the interpretation of σ^{iJ} differ with respect to δ ?
- b. Who is the swing voter? Use both an equation and words.
- c. Derive the vote share of people in group J who vote for A .
- d. Derive party A 's vote share.
- e. Derive the probability that party A wins the election.
- f. Write down the maximization problem to find the best response of party A , given g_B .
- g. Solve the First Order Condition (FOC) of the maximization problem in f. What's the meaning of the FOC?
- h. Repeat f. and g. for party B .
- i. Recall that $W^J(g) = (y - g)\frac{y^J}{y} + H(g)$. Using this and the FOC, derive the equilibrium policy.
- j. Discuss how the equilibrium policy that you obtained in i. differs from the equilibrium policy in the median voter theorem.

Now suppose that each group can decide to contribute money to the campaign of the politicians. Suppose that the willingness to contribute is exogenous. Call C_P^J the contribution per individual in group J to politician P . The total contribution of each member in group J is thus $C_A^J + C_B^J$. For any agent in group J , the cost of contributing to the campaign is $\frac{1}{2}(C_A^J + C_B^J)^2$. Whenever a candidate

receives a contribution, he spends the money and his popularity is affected. For simplicity, the popularity of party B is now:

$$\delta = \tilde{\delta} + h(C_B - C_A)$$

where C_P represents the sum of the contributions received by party P , and h is a parameter measuring the effectiveness of the campaign. Assume that $\tilde{\delta}$ is uniformly distributed with density on $\left[-\frac{1}{2\psi}, \frac{1}{2\psi}\right]$.

k. Characterize the agent who is indifferent between voting for politician A and B for given levels of contributions. Determine the vote share of politician A as well as his probability of winning the election.

l. Write the objective function of an individual who wants to maximize his utility and finance the politicians. Determine the optimal contribution of each individual.