

Political Economics (HT22): Final exam

Question 1: The Redistribution Puzzle [40%]

Consider an economy with a continuum of households of mass 1, who are characterized by unequal income endowments, y , distributed according to the cumulative distribution function $F(y)$. A democratically elected authority taxes income proportionally at rate τ and redistributes it equally with lumpsum, g . Thus the utility of a household (indexed by i) can be written as:

$$u_i = (1 - \tau)y_i + g \quad (1)$$

In order to finance g , the tax authority implements a distortionary tax, such that the tax policy's budget constraint is given by:

$$g = \Gamma(\tau)\bar{y}. \quad (2)$$

where \bar{y} is mean income, and $\Gamma(\tau) = -\tau^2 + \tau$.

- (a) [8 pts] Identify the most-preferred tax of Household i .

Answer:

$$\begin{aligned} \max_{\tau} (1 - \tau)y_i + (-\tau^2 + \tau)\bar{y} \\ -y_i + (1 - 2\tau)\bar{y} = 0 \\ \tau_i^* = \frac{1}{2}\left(1 - \frac{y_i}{\bar{y}}\right) \end{aligned}$$

- (b) [10 pts] If the policy is decided by a majority vote, what is the equilibrium tax rate? Make sure to be thorough in your solution by stating and making use of appropriate theorems.

Answer: Here we can apply the Median Voter Theorem which states that if all voters have single peaked preferences over a one-dimensional policy, then the bliss point of the median ranked individual is a Condorcet winner. The logic follows that a Condorcet winner would win against any alternative tax in a pairwise comparison. It needs to be shown that these preferences are single peaked. Check for concavity of utility in τ .

$$\frac{\partial^2 u_i(\tau)}{\partial \tau^2} = -2\bar{y} < 0$$

We apply MVT and find that $\tau^* = \frac{1}{2}\left(1 - \frac{y_m}{\bar{y}}\right)$

- (c) [7 pts] A researcher notes that, currently, the dispersion of household income in the US is such that the ratio of the median to mean is 0.7. While in Norway it is 0.9. What does the model above predict will be the difference between the two? Comment on this.

Answer: This model predicts that the equilibrium tax rate is increasing in the dispersion of income. That is, the lower is the ratio $\frac{y_m}{y}$ the higher is the predicted tax. Clearly that is not the case between the US and Norway, based on their reported income inequality. This calls into question the validity of the predictions of the median voter being decisive for determining redistribution.

- (d) [15 pts] Intrigued by this suggestive evidence, the researcher sets out to test the model's prediction and proposes the following regression model:

$$redist_{C,today} = \alpha + \beta * ineq_{C,today} + \epsilon_C \quad (3)$$

where *redist* measures redistribution policies, *ineq* measures inequality, and C indexes countries. They construct a very large cross-country data set consisting of average tax rates and income inequality. To maximize the inclusiveness of their data set, they use expenditure inequality to proxy for income inequality, when the latter is not available. They present their findings to you, which reveal a significant negative relationship, and conclude that the model predictions are wrong and thus we should reject its insights. Comment on their approach, findings, and conclusion.

Answer: Lots of possible things to discuss here. In terms of the approach, first, by using expenditure as a proxy for income, the study introduces a measure of post-tax inequality which threatens a mechanical bias on the findings. They may be finding a negative relationship because they are imposing a negative relationship on the variables by choosing a post-tax measurement. Also, the cross-sectional regression doesn't allow for country fixed effects, where time-invariant idiosyncratic preferences for redistribution can be controlled for. In addition, the OLS regression would only ever offer a suggested relationship between the two variables. We would always be worrying about the causality arrow, and that unobservable variables are biasing the findings.

One could talk about what an ideal experiment would look like, or at least some kind of exogenous shock to inequality. Their current approach certainly isn't strong enough to reject the importance of the relative location of the median voter. For example, Cascio and Washington (2014) use an event study on the expansion of black enfranchisement in the southern US on government transfers. There the location of the median voter falls, which results in an increase in redistribution.

See Lind (2005) for a summary of the redistribution puzzle.

Question 2: Disciplining politicians [60%]

In a two period agency model, a single voter chooses among a large pool of identical politicians in each of the two periods. In this dynamic setting, there is a concern that politicians become more efficient at "grabbing" rents the longer they remain in office.

While in office the elected politician can decide to be honest or corrupt. The payoffs to elected official are summarized by:

$$u_{pol} = \begin{cases} R, & \text{if honest} \\ R + r + \rho \mathbb{1}_{inc}, & \text{if corrupt} \end{cases} \quad (4)$$

where $\mathbb{1}_{inc}$ is an indicator function that takes the value 1 when the politician was also in power in the previous period, and 0 otherwise. Thus $\rho \geq -r$ are the additional rents enjoyed by a politician acting corruptly who has gained experience by merely being in power the previous period. If $\rho > 0$ the politician becomes more efficient at grabbing in the second term in office. If $\rho < 0$ the politician becomes less efficient at grabbing in the second term in office.

The voter's payoffs depend on the behaviour of the elected official and are given by:

$$u_{vot} = \begin{cases} 0, & \text{if honest} \\ -r - \rho \mathbb{1}_{inc}, & \text{if corrupt} \end{cases} \quad (5)$$

Both politicians and the voter discount future payoffs with $\delta \in [0, 1]$.

- (a) [5 pts] How would a re-elected incumbent behave when in power in Period 2? What about a newly-elected politician?

Answer: Both would act corruptly in the terminal period, since it provides the highest payoff, giving at least r more than being honest.

- (b) [10 pts] At the beginning of Period 2, under what conditions would the voter decide to re-elect the incumbent? When would she fire him? (Recall the parameter space $\rho \geq -r$)

Answer: The voter will only re-elect the incumbent if her payoff is at least as good as selecting a new official. Given that any politician she chooses in Period 2 will act corruptly, she weighs the payoffs under the two options.

$$\begin{aligned} -r &\leq -r - \rho \\ \rho &\leq 0 \end{aligned}$$

Thus the voter would only re-elect an incumbent if their rent extraction does not improve with experience.

When would she decide to fire the politician? Here she weighs the following payoffs of when to select a new politician.

$$\begin{aligned} -r &\geq -r - \rho \\ \rho &\geq 0 \end{aligned}$$

Essentially, if an experienced politician becomes better at corruption while in office, the voter would never allow them to stick around.

- (c) [10 pts] Under what conditions could the politician be disciplined by the promise of re-election?

Answer: First the promise of re-election must be credible, but also the threat of firing. Jointly, these imply that $0 \leq \rho \leq 0$. Second, the politician must weigh the gains from complying with the strategy or defecting immediately:

$$\begin{aligned} R + \delta[R + r + \rho] &\geq R + r \\ \delta[R + r + \rho] &\geq r \\ R + \rho &\geq r\left(\frac{1}{\delta} - 1\right) \end{aligned}$$

Because of the parameter space restriction imposed by the question of the voter's credibility in committing to both rewarding and punishing the incumbent, we must have that $\rho = 0$. Thus if the wage, R , is sufficiently high, or the politician is sufficiently patient, then the politician can be disciplined.

- (d) [15 pts] In light of the concern that incumbents can learn how to become more effective at misappropriating funds during their time in office, a political reform committee is preparing a proposal to institute term limits on politicians. As a student of political economics, they ask for your input on the impacts of such a reform. You may reference both theoretical predictions and empirical results. You may also make use of Table 7 from Ferraz and Finan (2011)¹ included below.

Answer: This answer can incorporate both theory and empirics. An obvious start is to discuss the re-election incentive from the agency model in this question (or even just re-election incentives in the agency model in general). The above model suggests that voters don't need the imposition of term limits in order to combat corruption. If the learning effect on corruption is too strong, they would cut politicians' careers short. And by eliminating the re-election incentive we may be missing out on being able to discipline politicians into honest behaviour.

In a discussion of empirics, one can point to the findings of Ferraz and Finan (2011), where they show strong evidence that the re-election incentive disciplines Brazilian mayors and reduces corruption. While the committee may worry that the authors are only finding that early career mayors haven't developed corrupt

¹Claudio Ferraz and Frederico Finan (2011) Electoral accountability and corruption: Evidence from the audits of local governments, *American Economic Review*.

networks or learned to be corrupt on the job, Table 7 shows that this is not the case. For example, Column 5 restricts the sample of mayors to all those in their second term and keeps only first term mayors who were previously mayors earlier in their career. The idea being to exclude "fresh" first-term mayors who haven't learned to be corrupt. They still find that these sub-group of experienced first term mayors are less likely to have committed corruption - and the effect is even a bit larger.

- (e) [20 pts] What role can/does the media play in disciplining politicians? Make use of both the theory and empirics from this course and feel free to expand beyond considerations of corruption.

Answer: This can be discussed both through theory or empirics. From a theory standpoint, we looked at a version of the agency model that included asymmetric information such that the voter couldn't determine with certainty whether the source of their bad utility outcome was from corrupt behaviour of the politician, or an unrelated shock. This uncertainty erodes the re-election mechanism's discipline on the politician. Here media could help to resolve this uncertainty. Another class of models, from Myerson (1993), showed the importance of coordination in escaping a bad equilibrium. Media can be a strong coordination device that allows large groups of voters to reject corrupt politicians en masse. In the Myerson framework, voters get stuck re-electing corrupt officials because they are worried that if they change their vote, then they give up power to the opposing ideology. Here media could allow all voters to be informed about the behaviour of the corrupt politician, and also the extent of the displeasure amongst their fellow voters, which hopefully would reduce the hesitancy of changing candidates.

From an empirical standpoint, Ferraz and Finan (2008) show that voters do punish corrupt politicians, and this response is even stronger when the electorate is well-informed by local media. From this result it is easy to argue that the media can play a large role in the rejection of corrupt politicians.

Another angle (i.e. not corruption) is explored by Snyder and Strömberg (2010), which details the connection between more newspaper reporting on a member of congress leading to better performance from the representative. The causal chain is argued to run from a strong congruence between congressional districts and a newspaper's market leading to more stories published about the district's representative. With more exposure to political stories, the district's electorate turns out in greater numbers on election day. The increased turnout by informed voters leads to greater effort from the representative by, for example, breaking party discipline and participating in more committees. Finally, this increased effort can be seen to lead to more federal spending directed towards the district.

TABLE 7—THE EFFECT OF REELECTION INCENTIVES ON CORRUPTION CONTROLLING FOR ABILITY AND EXPERIENCE

| Dependent variable | Share of audited resources involving corruption | | | | | |
|--|---|--|---------------------|---------------------|---|---|
| | Second-term and first-term later reelected (1) | Second-term and first-term later reelected predicted (2) | Full sample (3) | Full sample (4) | Second-term and first-term that served as previous mayors (5) | Second-term and first-term that served as mayor or legislator in past (6) |
| Mayor in first-term | -0.04 [0.013]*** | -0.034 [0.018]* | -0.027 [0.012]** | -0.030 [0.012]** | -0.038 [0.014]*** | -0.027 [0.017] |
| Mayor with political experience | | | -0.007 [0.011] | | | |
| Number of years in political office | | | | 0.008 [0.007] | | |
| Number of years in political office ² | | | | -0.002 [0.001] | | |
| R^2 | 0.27 | 0.29 | 0.21 | 0.21 | 0.30 | 0.29 |
| Observations | 313 | 294 | 476 | 476 | 287 | 311 |
| Mayor characteristics | Yes | Yes | Yes | Yes | Yes | Yes |
| Municipal characteristics | Yes | Yes | Yes | Yes | Yes | Yes |
| Political and judicial institutions | Yes | Yes | Yes | Yes | Yes | Yes |
| Lottery intercepts | Yes | Yes | Yes | Yes | Yes | Yes |
| State intercepts | Yes | Yes | Yes | Yes | Yes | Yes |

Notes: This table reports the effects of reelection incentives on the share of resources involving corruption. Column 1 compares the corruption levels of second term mayors to those of the subset of first term mayors that were reelected in the subsequent mayor elections. Column 2 compares the corruption levels of second term mayors to those of the subset of first term mayors who were predicted to be reelected, based on a propensity score. Column 3–4 is estimated on the full sample. Column 5 includes only municipalities with a second-term mayor and first-term mayors who had a mayor in a previous term. Column 6 includes only municipalities with a second-term mayor and first-term mayors who had been either a mayor or legislator in a previous term. Mayor characteristics include the age, gender, education and party affiliation of the mayor. Municipal characteristics: population expressed in logarithms, percentage of the population that has at least a secondary education, percentage of the population that lives in the urban sector, new municipality, log GDP per capita per in 2002, Gini coefficient. Political and judicial institutions include: effective number of political parties in the legislature, the number of legislators divided by the number of voters, the share of the legislature that is of the same party as the mayor, and whether the municipality is judiciary district, and the amount of resources sent to the municipality expressed in logarithms. Robust standard errors are displayed in brackets.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.