Political Economics (HT24)

Question 1: Multi-dimensional politics [50%]

One example of multi-dimensional politics is the provision of local public goods (e.g. schools, hospitals, infrastructure, etc.). Consider a model where there are $\mathcal{J}$ groups of voters with an equal size of voters in each group. Thus the total number of voters is simply $N = \mathcal{J}$, when group mass is normalized to 1. Policy is a vector:

$$\mathbf{g} = \{g^1, g^2, ..., g^{\mathcal{J}}\} \tag{1}$$

where $g^J \geq 0$ is the amount of local public goods provided to all members of group $J \in \mathcal{J}$. Individuals in group J have preferences:

$$w^J = c^J + 2\sqrt{g^J} \tag{2}$$

Income, y, and taxes, τ, are equal across individuals. Thus an individual in group J has budget constraint:

$$c^J = y - \tau \tag{3}$$

The government spends all its revenue on providing the local public goods.

$$\sum_J g^J = N\tau \tag{4}$$

(a) [1/6 pts] Setting aside assumptions on electoral competition for now. What is the socially optimal policy, $\mathbf{g}^*$?

Answer: Substitute budget constraints into voter welfare to give objective function

$$\begin{aligned} &max_{\mathbf{g}} \sum_J [y - \frac{1}{N}\sum_J g^J + 2\sqrt{g^J}] \\ &= Ny + max_{\mathbf{g}} \sum_J [2\sqrt{g^J} - g^J] \end{aligned}$$

Taking first order conditions for each g^J in $\mathbf{g}$ yields:

$$\frac{1}{\sqrt{g^J}} - 1 = 0 \implies g^J = 1$$

Thus the socially optimal policy is to provide each group equally with 1 unit of the local public good, $\mathbf{g}^* = \{1, 1, ..., 1\}$.

(b) [1/6 pts] Assume that the allocation of local public goods are decided through legislative bargaining, where each group J is represented by a member of the legislature. One member, a, is chosen as the agenda setter and a "closed rule" process is carried out, where the agenda setter proposes a take-it-or-leave-it allocation of public goods. If the proposal fails to achieve a simple majority, the allocation defaults to $\mathbf{g}^*$. Assume that τ is exogeneously set to a level that exactly finances the default allocation, e.g. $\tau N = \mathcal{J}\bar{g}$, where $\bar{g}$ is the mean group allocation. For convenience, let $\mathcal{J}$ be odd, and assume indifferent policy makers support the proposition. What would be the equilibrium allocation in this setting? Compare this to the socially optimal solution in part (a).

Answer: Here the agenda setter has the power to exclude $\frac{\mathcal{J}-1}{2}$ groups from receiving any spending and transfer nearly half of the resources to her own constituents. She can win the majority vote by ensuring that half of the members get at least as much as they would if the vote were to fail and default to the social optimum. Her $\frac{\mathcal{J}-1}{2}$ coalition partners in the "in group" get allocations equal to 1. And the remaining "out" groups are excluded entirely from public good provision. The direction of government spending is very different from the optimal, where the power of agenda setting has derived a pattern that heavily favors the member endowed with this power. The supporters of the agenda setter enjoy the optimal allocation, while the out group are completely excluded. The allocation is very unequal compared to the first best.

$$
\begin{aligned}
g^a &= \mathcal{J} \cdot 1 - \frac{\mathcal{J}-1}{2} \cdot 1 \\
g^{in} &= 1 \\
g^{out} &= 0
\end{aligned}
$$

(c) [1/6 pts] Now assume that political competition in this setting is characterized by the assumptions behind the probabilistic voting model. Specifically, in addition to voters shaping their preferences over the local public good policy, $\mathbf{g}$, they also have an individual bias, σ^{iJ} either for or against the ideological position of party B relative to A. Also, the timing of the model is such that there is the possibility of a scandal hitting either party after they announce their policy commitments. This scandal, δ, can either hurt or improve every voters' perception of Party B relative to A. Voter preferences are given by

$$
w^{iJ} = y - \frac{1}{N}\sum_J g^J + 2\sqrt{g^J} + (\sigma^{iJ} + \delta)D_B \tag{5}
$$

where D_B is an indicator variable for Party B winning the election. Individual biases are distributed uniformly over the unit interval $[-\frac{1}{2\phi^J}, \frac{1}{2\phi^J}]$ that can vary across groups of voters. The scandal shock is drawn from a uniform distribution on $[-\frac{1}{2\psi}, \frac{1}{2\psi}]$.

Since parties are only motivated by obtaining office, they set their policy, $\mathbf{g}_A$ in order to maximize the probability of being elected, p_A. Use the expression for p_A

below to solve for the equilibrium policies of both parties. Comment on the result, particularly the distribution of public spending (i.e. $g^1, ..., g^{\mathcal{J}}$), and compare it to the equilibrium policy derived in part (b). What might be an explanation for the difference between the two equilibria, specifically in relation to *policy divergence*?

$$p_A = \frac{1}{2} + \frac{\psi}{\phi}\frac{1}{N}\sum_J \phi^J [2\sqrt{g_A^J} - \frac{1}{N}\sum_J g_A^J - (2\sqrt{g_B^J} - \frac{1}{N}\sum_J g_B^J)] \tag{6}$$

where $\phi = \frac{1}{N}\sum_J \phi^J$.

Answer: First with respect to Party A's decision, we take first order condition of p_A with respect to each g_A^J.

$$max_{g^J} \quad p_A = \frac{1}{2} + \frac{\psi}{\phi}\frac{1}{N}\sum_J \phi^J [2\sqrt{g_A^J} - \frac{1}{N}\sum_J g_A^J - (2\sqrt{g_B^J} - \frac{1}{N}\sum_J g_B^J)] \tag{7}$$

This results in the optimal policy decision

$$\frac{\psi}{\phi}\frac{1}{N}[\frac{\phi^J}{\sqrt{g_A^J}} - \frac{1}{N}\sum_J \phi^J] = 0$$

$$g_A^J = (\frac{\phi^J}{\phi})^2$$

Since the problem is symmetric for each party, both A and B will promise the same platform, which targets the "swing voter" in each group. This is the voter that is least interested in non-policy related payoffs, i.e. is the least ideologically biased voter. This result implies that public spending is increasing in ϕ^J, which inversely measures the dispersion of the ideological bias. That is the higher is ϕ^J the more voters can be persuaded by the party's policy platform. If ϕ^J is not equal across groups this implies that resources will not be targeted equally across groups as they were in the socially optimal allocation.

In comparison to the legislative bargaining problem from part (b), part (c) does not model the post-election political process, because it assumes that politicians can commit to implementing their election platforms. The existence of commitment ensures that policy convergence occurs, and the identity of the winning party doesn't matter for the implemented policy. In legislative bargaining, the identity of the agenda setter and their "in group" is decisive for the direction of spending and we have policy divergence that depends on the identity of the agenda setter. Implicit in this outcome, is that the politicians were unable to commit to their policy in the electoral competition stage.

Question 2: Electoral accountability and corruption [50%]

In the paper *Electoral Accountability and Corruption: Evidence from the Audits of Local Governments*[1] the authors examine the effects of electoral accountability on corruption in local governments in Brazil. The context of the study is a political reform which relaxed term limits on Brazilian mayors, allowing them to run for re-election after one term of service. The two main threats to identification in the study are unobserved municipal-level confounds and unobserved characteristics of individual politicians.

(a) [1/6 pts] (a) What would be an ideal experiment to find the causal effect of re-election incentives on corruption?

Answer: The ideal experiment would be to randomize re-election incentives, by, for example, having a lottery that assigns the possibility of reelection across municipalities and then measuring the differences in corruption levels for first term mayors across these two groups.

(b) [1/6 pts] (b) Due to the infeasibility of the ideal experiment, how do the authors address the threat of unobserved municipal-level confounds? Describe the empirical approach and interpret the coefficient -0.038 on column (4) in Table 6 (see below).

Answer: The authors make use of a close election regression discontinuity design to compare municipalities that have experienced arbitrarily close elections. Municipalities are "treated" with a new mayor if the incumbent lost a very close election. The control group is thus the municipalities that re-elected the incumbent in a very close election. As long as the probability of re-election is continuous at the winning threshold, the assignment of treatment is as good as random, and unobserved municipal characteristics should balance across the two groups at the threshold. The co-efficient is the local average treatment effect, which says that a municipality which elects a new mayor with re-election prospects will experience 3.8 percentage points less corruption than a municipality with a term-limited mayor.

(c) [1/6 pts] (c) What are some alternative explanations for why second term mayors may be more corrupt? Explain how the authors address these issues? Interpret the first row coefficients in columns (1) and (5) of Table 7 (see below) in the context of these alternative explanations.

Answer: The authors put forward two main explanations for individual characteristics. The first is ability. If elections work to select the best politicians, and political ability is positively correlated to corruption, then this would introduce bias. To overcome this, they reduce the sample of first term mayors to include only those mayors who are subsequently re-elected (and thus signal higher ability through their success). The estimated effect is a 4pp fall in corruption associated with first term mayors, which is quite close to the RDD estimate. The second explanation is experience. That is, politicians learn how to be corrupt the longer they are in office. Reducing the sample of first term mayors to include only politicians

[1]Ferraz, C. and Finan, F., 2011. Electoral accountability and corruption: Evidence from the audits of local governments. *American Economic Review*, 101(4), pp.1274-1311.

with previous mayoral experience yields a relationship of similar magnitude to the RDD estimate, -3.8 pp. So political experience does not seem to explain away the effect of re-election incentives.

TABLE 6— THE EFFECT OF REELECTION INCENTIVES ON CORRUPTION, CONTROLLING FOR UNOBSERVED MUNICIPAL CHARACTERISTICS

Dependent variable	Share of audited resources involving corruption						
	Incumbents who run for reelection in 2000 (1)	Linear (2)	Quadratic (3)	Cubic (4)	Linear spline (5)	Quadratic spline (6)	Cubic spline (7)
Mayor in first term	−0.031	−0.039	−0.040	−0.038	−0.043	−0.047	−0.028
	[0.014]**	[0.019]**	[0.019]**	[0.022]*	[0.019]**	[0.024]*	[0.029]
Observations	328	328	328	328	328	328	328
R^2	0.27	0.27	0.27	0.27	0.27	0.28	0.28
Mayor characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipal characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Political and judicial institutions	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lottery intercepts	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State intercepts	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports the effects of reelection incentives on the share of resources involving corruption. The estimation samples in columns 1–7 include only municipalities where the incumbent ran for reelection. In columns 2–4, the functional form assumption for the running variable is specified at the top of each column. 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.

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 office²				−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.