Political Economy Summer 2024 Exam: Answer Two Different Questions

1. **518: Elections as All-Pay Auctions.** Consider a game with 2 candidates running for office. Call them 1 and 2. Each candidate $i \in \{1, 2\}$ selects a level of effort a_i which is a non-negative real number. The median voter prefers candidate 1 if $a_1 + \alpha > a_2$; she prefers candidate 2 if the inequality is strict the other way and she is indiferent if there is equality. Candidates obtain a benefit of 1 from winning and pay a cost of βa_i i from expenditure level a_i. The cost is suffered regardless of who wins. Assume that $\alpha\beta < 1$.

   (a) Is there a pure strategy Nash equilibrium?

   (b) Find a mixed strategy Nash equilibrium

   (c) From your previous answer, provide a summary of what the analysis tells us. In other words, say as much as you can about things that might matter (payoffs, who wins, who spends more).

   (d) Now consider a different variant with the following changes. There are three candidates. The median voter prefers whichever candidate has selected the highest level of a_i. She is indifferent between candidates that select the same level. Now suppose that the costs of effort are candidate specific with $\beta_1 < \beta_2 < \beta_3$. Find a mixed strategy Nash equilibrium.

   (e) Compare what you learn from the two models here.

2. **519: Electoral Politics, Inequality, and Redistribution.** [This is a slightly modified/extended version of Exercise 2.3 in the textbook.]

Consider an adaptation of the Hotelling-Downs model. There are two groups in the population, the poor (p) and the rich (r), with per capita incomes of $y_p < y_r$. Let the proportion of poor and rich citizens in society be given by α_p and α_r respectively. Assume $\alpha_p > \alpha_r$ so the poor are more numerous than the rich.

There are two office-seeking parties $P = A, B$. Each party P proposes a linear tax $\tau_P \in [0, 1]$, which if implemented would fall equally on all citizens. Total tax revenue $\tau_P(\alpha_p y_p + \alpha_r y_r)$ would be returned to all citizens as a lump-sum transfer, net of the deadweight loss of taxation, given by $\frac{\gamma}{2}\tau_P^2(\alpha_p y_p + \alpha_r y_r)$, where $\gamma > 0$. The net income of any individual in group g (assumed to be equal to her payoff from redistributive policy) is thus:

$$u_g(\tau_P) = (1 - \tau_P)y_g + \left(\tau_P - \frac{\gamma}{2}\tau_P^2\right)(\alpha_p y_p + \alpha_r y_r)$$

As in the standard set-up, both parties simultaneously announce their tax policies. Voters vote. The election winner takes office and implements the announced policy.

(a) What is the most preferred tax rate of the poor? What is the most preferred tax rate of the rich? Assume first that each voter votes for the party whose announced tax rate maximizes her net income. What is the equilibrium tax rate chosen by each party P? How do these answers depend on the size of the deadweight loss of taxation?

(b) Next assume that each voter i in group g holds an idiosyncratic affinity for Party B given by η_{ig}, so that any voter will support Party A if $u_g(\tau_A) > u_g(\tau_B) + \eta_{ig}$ and will support Party B otherwise. We assume that the distribution of voters' affinities is the same for both groups, where η_{ig} is distributed uniformly on $\left[\frac{-1}{2\omega}, \frac{1}{2\omega}\right]$. Find the policy τ_P adopted by each Party P in equilibrium.

Now assume that both poor and rich citizens have preferences characterized by *self-centered inequality aversion*, as defined by Fehr and Schmidt (1999). The payoff function for poor citizens is given by:

$$u_p(\tau_P) = (1 - \tau_P)y_g + \left(\tau_P - \frac{\gamma}{2}\tau_P^2\right)(\alpha_p y_p + \alpha_r y_r) - \kappa_p(1 - \tau_P)(y_r - y_p)$$

where $\kappa_p > 0$. Similarly, the payoff function for rich citizens is given by:

$$u_r(\tau_P) = (1 - \tau_P)y_g + \left(\tau_P - \frac{\gamma}{2}\tau_P^2\right)(\alpha_p y_p + \alpha_r y_r) - \kappa_r(1 - \tau_P)(y_r - y_p)$$

where $\kappa_r > 0$. Note that both groups suffer disutility from higher inequality, though the magnitude of this effect need not be the same.[1] We assume that κ_p and κ_r are sufficiently small to ensure interior solutions in the following.

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[1]You could think of this as the disutility of poor voters from the rich having a higher net income, and the (perhaps emotional/psychic) cost to rich voters of observing inequality. Note that because the lump-sum transfer, net of the deadweight loss, is the same for both groups, it does not enter into the disutility of inequality.

(c) What is the optimal tax rate for rich and poor voters respectively under self-centered inequality aversion? How, if at all, is the optimal tax rate for each group different from that found in part (a)?

(d) As in part (b), assume that voters in both groups have idiosyncratic affinities for Party B, where $\eta_{ig} \sim Unif\left[\frac{-1}{2\omega}, \frac{1}{2\omega}\right]$ for both rich and poor voters. Find the policy τ_P chosen by each party in equilibrium.

(e) How does self-centered inequality aversion influence redistributive platforms? How does this depend on the pre-tax-and-transfer inequality (i.e., $y_r - y_p$) and the size of the deadweight loss of taxation?

3. **721: The Weight of the Past**

   This set of questions pertain to Acemoglu, Johnson and Robinson (2001):

   (a) State succinctly what is the main research question of this paper.

   (b) Discuss the main identification threats in trying to address the stated research question with a simple contemporaneous OLS.

   (c) Explain with verbal precision the theory that justifies the identification strategy that the authors pursue. What role does the concept of "persistence" play in this identification strategy?

   (d) Explain Table 3: Why is this table important in the narrative of the paper?

   (e) Explain Table 7: Why is this table important for the credibility of the paper?

   Now consider Bazzi, Fiszbein and Gebresilasse (2020):

   (c) What is the specific research question of this paper?

   (d) How do the authors operationalize this question (i.e. which data do they use as measurement for which concepts)?

   (e) What is the role of Table III in the paper? Discuss the fact that in this Table no measure of infrequent names appears.