

14.773 Final Exam

Daron Acemoglu and Benjamin Olken

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You have 3 hours to complete this exam. Answer all questions, putting each professor's section in a separate blue book. Please try to write neatly - remember, we have to be able to read what you write! Good luck!

1 Acemoglu Section

Short Questions (30 minutes – 10 minutes per question):

1. True, false or uncertain: the equilibrium in the standard static median voter model of redistribution is Pareto inefficient when the median voter is poorer than the mean as in this case there will be distortionary taxation and redistribution discouraging investment or labor supply.
2. True, false or uncertain: political economy models cannot explain inefficient policies because even selfish individuals and groups could agree on adopting efficient policies and then redistributing income across agents in society after these policies are implemented.
3. Explain why, of two otherwise-identical societies, one in which the rich are landowners may have greater difficulty in transitioning and consolidating democracy than the one in which the rich are capital owners.

Long question (60 minutes):

Consider an overlapping-generations model where agents live for two periods, and suppose for simplicity that there is a single agent in each period (generation). Each agent chooses an action $A_t \in \{H, L\}$ when born. His payoff is

$$(1 - \lambda) u(A_t, A_{t-1}) + \lambda u(A_t, A_{t+1}), \quad (1)$$

where A_{t-1} designates the action of the agent in the previous generation and A_{t+1} is the action of the agent in the next generation. Suppose that the stage game payoffs are given by

	<i>H</i>	<i>L</i>
<i>H</i>	c, c	$-l, c + w$
<i>L</i>	$c + w, -l$	$0, 0$

where $c, l, w > 0$.

1. Suppose that each agent observes the action chosen by the previous generation (and nothing else from the past). Show that there exists a (subgame perfect) equilibrium in which all agents choose L . Show also that there exists $\bar{\lambda} < 1$ such that when $\lambda \geq \bar{\lambda}$, there exists an equilibrium in which all agents choose H . Can these equilibria be interpreted as having different social norms?
2. Now suppose that each agent observes a signal s of the previous agent's action (and nothing else from the past), where s is drawn from a distribution F_H when the action is H and from a (different) distribution F_L when the action is L . Show that there exists an equilibrium in which all agents play L . Does an equilibrium in which all agents play H also exist?
3. Now also suppose that with some probability $\pi > 0$ an agent is committed to H and with the same probability to L . Each agent again observes a signal s of the previous agent's action as in 2 and nothing else from the past (and does not observe directly whether the previous agent is a committed type or a non-committed to my endogenous player). Show that there exists an equilibrium in which all agents play L . Does an equilibrium in which all agents play H also exist?
4. Consider again the case in 3 and focus on the "greatest" (most cooperative) equilibrium. Explain (without doing the math) what the structure of this equilibrium is in this case. [Hint: you may want to assume, with an explanation, that F_H and F_L have densities that satisfy the monotone likelihood ratio property is satisfied and $l \geq w$]. Does this equilibrium have additional features (relative to 1) reminiscent of social norms?

2 Olken Section

1. **(40 minutes – 10 minutes per question)** For each of the following statements, discuss whether the statement is True, False, or Uncertain, and explain why and under what assumptions. Use the theory and evidence discussed in class to support your arguments.
 - (a) Banning vote-buying increases the welfare of citizens.
 - (b) Increasing the number of people in a group decreases the group's ability to provide public goods.
 - (c) Moving from one media source in a market to two in a market decreases the average amount of media bias.
 - (d) Corruption in driver's licenses is a more serious social problem than corruption in government procurement.
2. (50 minutes) Suppose that there are a very large number of individuals in the population, consisting of two types of individuals: high productivity (h) and low productivity (l). Individuals can choose whether to run for

office and become a politician, or work in the private sector. In the private sector, a high type earns wage w_h and low type earns wage w_l , which $w_h > w_l$. If you run for office, you pay a campaign cost δ . If you are elected, you earn the politician wage π instead of your private sector wages. So payoffs for type i are

- w_i if you do not run for office
- $w_i - \delta$ if you run for office and lose
- $\pi - \delta$ if you run for office and win

Suppose that voters cannot observe type, so vote randomly. If multiple candidates run for office, all candidates have an equal probability of getting elected.

1. Suppose $w_l < \pi < w_h$. Characterize the equilibrium or equilibria as a function of π and δ .
2. How does the equilibrium change as π increases? Continue to assume that $w_l < \pi < w_h$.
3. How does the equilibrium change as δ increases? Continue to assume that $w_l < \pi < w_h$.
4. What happens if π increases such that $w_l < w_h < \pi$? Characterize the new equilibrium or equilibria.

In Brazil, a constitutional amendment specifies the following rule for the maximum salary allowed for municipal legislators. (See Table 1, first two columns, attached).

5. What empirical strategy(s) would you use to take advantage of this constitutional amendment to identify the impact of politician salaries?
6. In light of the theory above, what outcome variables would you want to examine?
7. Write down the estimating equation(s) you would use to estimate the impact of salaries.
8. How would you check that this empirical strategy is valid?
9. Ferraz and Finan use this constitutional amendment to investigate the impact on legislative performance. (The results are shown in the attached Table 5.). Interpret the results they find. How would you interpret the results in line with the model above? Can you think of another type of mechanism/model that would explain these results?

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