Solutions for the Retake Exam for the M. Sc. in Economics

University of Copenhagen

Political Economics, Fall 2015

3 hours
Answer only in English
No aids allowed

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1. a. The theory of institutional differences presented in Acemoglu et al. rests on three premises. First, there were different types of colonization strategies which created different sets of institutions. On one hand, European powers set up extractive states (i.e. Belgian colonization of the Congo). In such types of colonies, the main purpose was to transfer as much of the resources of the colony to the colonizer. Hence, property rights protection and government checks and balances were not introduced.

On the other hand, many Europeans migrated and settled in a number of colonies (USA, Australia, New Zealand; also known as Neo-Europes). The settlers tried to replicate European institutions, with strong emphasis on private property and checks and balances against government power.

Acemoglu et al. argue that the colonization strategy was influenced by the feasibility of settlements. In places where the disease environment was not favorable to European settlement, the creation of Neo-Europes was unlikely and the formation of an extractive state was more likely. Finally, Acemoglu et al. argue that the institutions created during the colonization persisted after independence, shaped current institutions, and thus affect current performance.

The exogenous variation that they exploit in the paper are the mortality rates expected by the first European settlers in the colonies as an instrument for current institutions in these countries.

b.

$$\log y_i = \mu + \alpha R_i + \gamma X_i + \epsilon_i \tag{1}$$

$$R_i = \lambda + \beta \log M_i + \gamma X_i + \upsilon_i \tag{2}$$

where y_i is income per capita in country i, R_i is the protection agains expropiation measure, M is the measure of mortality rates faced by settlers, and X_i is a vector of control covariates.

The authors need to use an IV because the correlation between institutional and economic measures may reflect the reverse influence of economic growth on institutions or the simulteneous influence of omitted variables on both economic output and institutions.

c. The following are the assumptions and its explanation:

1. The instrument is as good as randomly assigned. That means it is independent of the vector of potential outcomes and potential treatment assignments.

2. Exclusion restriction: the potential outcome (the endogenous variable) is only a function of treatment. That means that the outcome variable is only affected through treatment, and not through any other channel.

3. The first stage exists. That means that treatment status is affected by the instrument.

4. Monotonicity: it means that while the instrument may have no effect on some people, all those who are affected arre affected in the same way (direction).

The following is the discussion of what each assumption means in the context of Acemoglu et al. paper.

1. That the instrument is as good as randomly assigned means that the instrument is not correlated with any other covariate. In other words, covariates are balanced across treatment and control group. This assumption is enough for both the reduced form and the first-stage to capture a causal effect.

2. Exclusion restriction: that means that we are only measuring the effect of property rights protection on current economic peformance. Thus, the exclusion restriction is violated if settler mortality affects current performance through channels other than property rights protection. One potential example, and the authors discuss it in the paper, is that of settler mortality affecting the current disease environment and this affecting economic performance today.

3. The first stage exists. That means that there is a significant relationship between settler mortality and property rights protection. In other words, settler mortality affects property rights protection.

4. Monotonicity means that there is a negative linear (monotonic) relationship between settler mortality and property rights protection. The higher the settler mortality the lower the level of protection of property rights. Monotonicity does not allow for defiers to exist. In our case,

a defier would be a country with high settler mortality in the past and with high property rights protection today.

2. a. Alesina and Fuchs-Schundeln consider both economic motives and altruistic reasons when explaining people's preferences for redistributive policies. First, there is a purely individualistic economic motive. If an individual is a direct recipient of a transfer program (i.e. income support), he favors it. This individualistic economic motive might hold even for people who are not current beneficiaries of redistributive policies. If they think they might be poor in the future, they might favor such policies. And if they expect to be rich in the future, they might be agains it.

Second, there is also an economic motive that is not purely individualistic. An individual might be in favor of transfers that benefit his neighbors. For example, that would be the case of a public school built in a city with taxes raised across the country.

Finally, there might be an altruistic motive. A rich person might think that the poor should be supported financially, even if that is costly for him. Such altruistic feelings might be stronger if one thinks that market outcomes are unfair, and believes that those who succeed are either "connected" or "lucky". Part of this altruistic motivation might also be individualistic. For instance, an individual might find that the sight of poverty is unpleasant and thus support redistributive policies.

b. The specification is the following:

$$y_i = \alpha + \beta East_i + \delta X_i + \epsilon_i$$

where y_i is a variable measuring how favorable the individual is with respect to a redistributive policy , $East_i$ is a dummy that takes on the value of one if the respondent lived in East Germany before reunification, and X_i are baseline controls (i.e. age, gender, marital status, labor force status, education, occupation, etc.).

The identification assumption of the paper is the Conditional Independence Assumption (CIA). CIA asserts that conditional on observed characteristics, X_i, selection bias disappears. Formally:

$$\{Y_{0i}, Y_{1i}\} \perp East_i | X_i$$

Given the CIA, conditional on X_i, comparisons of average preferences across east-west have a causal interpretation. In other words:

$$E[Y_i | X_i, East_i = 1] - E[Y_i | X_i, East_i = 0] = E[Y_{1i} - Y_{0i} | X_i]$$

c. The main story from the findings in Column 2 is that East Germans become less pro-state

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over time (interaction between East and $Year02$). Thus, it looks like after the fall of communism, East German' views regarding the role of the state in redistributing income are converging towards those of West Germans.

The table also shows that as people age, they become less pro-redistribution. However, older former East Germans are more favorable toward state intervention. Thus, it looks like the longer you have lived under a specific political regime, the less likely you are to change your policy preferences.

d. According to rational expectation theories, East Germans should filter out the biases they have been subjected to during communist years. Thus, according to these theories, there should not be differences in policy preferences between West and East Germans. Even theories of rational learning are not consistent with the findings: this theory poses that individuals might be initially uncertain about the indoctrination they have been subjected to, but the effect of indoctrination on policy preferences should be temporary and fade away as individuals become aware of their biases. Thus, it is inconsistent with the effect still showing up in 1997 and 2002, years after the fall of the Berlin Wall.

Behavioral and cognitive theories, which we could refer to as theories of nonrational persuasion, pose that individuals do not discount the biases of indoctrination strongly enough. This could explain the different policy preferences across East and West Germans, as well as the slow fading away of these differences. Some potential mechanisms discussed in these theories are confirmatory bias and cognitive dissonance.

e. δ_p control for any time-invariant characteristic at the province level (both observed and unobserved). Thus, the effects of the new curriculum on policy preferences cannot be driven by fixed differences between provinces such as geography, history, traditions (note that traditions might change over time, but it is unlikely that they change a lot between 2004 and 2010), etc.

γ_c control for any event that affects uniformly the same cohort. In other words, it controls for cross-cohort changes in policy preferences that occur even in the absence of the curriculum. For instance, younger cohorts might watch more Western TV shows because they grow up with them, whereas older cohorts might not watch such TV shows as much because they were not available when they were kids. One could argue that Western TV shows make individuals more optimistic about free markets. Thus the introduction of the new curriculum, that affected more younger cohorts, could be confounded with preferences for TV shows, biasing the estimate β. By controling for cohort fixed-effects the authors are differencing out this type of cross-cohort changes.

There are two main types of threats to identification. First, factors that differentially affect different cohorts within a province. For instance, there might be an earthquake in one province (i.e. the Sichuan 2008 earthquake) and that the schools in that province collapse. Younger cohorts in these provinces might be less affected by the new curriculum if they cannot go to school for a

prolonged period of time.

The second threat to identification comes from unobserved factors that vary at the province and cohort level that affect adjacent cohorts within the same province smoothly. Going back to the example of TV shows: if one province opens a new TV station that broadcasts Western TV shows, and all cohorts watch them because the TV series are very popular, and this affects policy preferences. In that case, the opening of the TV station will confound the effects of the new curriculum.

3. a. The government budget constraint is:

$$\int \tau y^i di = \tau y = g \text{ i.e. } \tau = g/y$$

b. The individual preferences can be rewritten as:

$$W^i(g) = (1 - g/y)y^i + H(g)$$
$$W^i(g) = (y - g)\frac{y^i}{y} + H(g)$$

Agent's preferred policy is found from

$$\max_g W^i(g) = \max_g (y - g)\frac{y^i}{y} + H(g)$$

The FOC is

$$\frac{\partial W^i}{\partial g} = 0 \Leftrightarrow H_g(g) = \frac{y^i}{y}$$

The preferred policy satisfies:

$$g^i = H_g^{-1}\left(\frac{y^i}{y}\right)$$

c. H strictly concave $\Rightarrow H_g$ decreasing function $\Rightarrow H_g^{-1}$ decreasing function $\Leftrightarrow g^i \downarrow$ for $y^i \uparrow$

The intuition is: low income $\Longrightarrow$ marginal cost of higher tax rate is also low, but marginal benefit of higher spending is the same as for everyone else.

d. Utilitarian welfare function:

$$\begin{aligned}
SWF^U &= \int_i W^i(g)dF \\
&= \int_i \left((y-g)\frac{y^i}{y} + H(g)\right) dF \\
&= (y-g)\frac{\int_i y^i dF}{y} + H(g) \\
&= (y-g) + H(g) = W(g)
\end{aligned}$$

where $W(g)$ is the utility for the agent with $y^i = y$ (the mean income). Note: $dF = f(i)\,di$. The socially optimal level for g

$$\begin{aligned}
\max_g SWF^U &= W(g) \Rightarrow \\
g^* &= H_g^{-1}(1)
\end{aligned}$$

A social planner maximizing SWF^U chooses the preferred policy of a voter with average income.

e. The probability of winning the elections is:

$$
p_A = \begin{cases} 1 \text{ if } W^m(g^A) > W^m(g^B) \\ 1/2 \text{ if } W^m(g^A) = W^m(g^B) \\ 0 \text{ if } W^m(g^A) < W^m(g^B) \end{cases}
$$

In a Nash-eq, the parties therefore propose

$$
g_A = g_B = g^m
$$

f. The result in e) is different to the result in d) whenever the distribution of income is such that $y^m \neq y$.

g. As before, Median voter is pivotal: Given policy choices g_L, g_R, the probability L wins is:

$$
p_L = \begin{cases} 0 & \text{if} \quad W^m(g_L) < W^m(g_R) \\ \frac{1}{2} & \text{if} \quad W^m(g_L) = W^m(g_R) \\ 1 & \text{if} \quad W^m(g_L) > W^m(g_R) \end{cases}
$$

Given g_R, candidate L chooses g_L to maximize expected utility:

$$
E[W^L(g)] = p_L W^L(g_L) + (1 - p_L) W^L(g_R)
$$

The following is the trade-off that politicians face: moving g_L right towards own preferred policy raises benefit of winning, moving it left increases p_L.

The problem is symmetrical for candidate R: given g_L, candidate R chooses g_R to maximize expected utility:

$$
E[W^R(g)] = p_R W^R(g_R) + (1 - p_R) W^R(g_L)
$$

Then, consider L's problem if R is choosing $g_R = g^m$:

- Choosing $g_L = g^m$ means $p_L = \frac{1}{2}$ yielding a utility of $\frac{1}{2} W^L(g_L) + \frac{1}{2} W^L(g_R) = W^L(g^m)$

- Choosing $g_L \neq g^m$ means $p_L = 0$ and so also yields a utility of $W^L(g_R) = W^L(g^m)$

- It follows that $g_L = g^m$ is a best response to $g_R = g^m$

Doing same argument for R shows that $g_L = g_R = g^m$ is a (SP) Nash equilibrium. Thus, there is policy convergence.

The following two arguments show that there are no incentives to deviate. First:

- If R is announcing g^m, L is indifferent between any policy announcement: g^m will occur anyway (see points above).

- But assume L announces something other than g^m, then consider R's incentive to deviate:

  - If R moves his policy a little bit to the left, he will still win but will now implement something he likes better.
  - So equilibrium only occurs when both candidates announce g^m

Second:

- Are there any equilibria where $g_R^* \leq g_R < g^m < g_L \leq g_L^*$? Consider L's incentives to deviate:

  - If $p_L = 0$ then clearly it is profitable to move g_L to the left until $p_L = \frac{1}{2}$ (so there is some chance of a policy right of g^m).
  - If $p_L = \frac{1}{2}$ then shifting g_L to the left by some amount $\varepsilon > 0$ is profitable if:

$$W_L(g_L - \varepsilon) > \tfrac{1}{2}W_L(g_L) + \tfrac{1}{2}W_L(g_R) \iff$$
$$W_L(g_L - \varepsilon) - W_L(g_L) > \tfrac{1}{2}\left(W_L(g_R) - W_L(g_L)\right)$$

  - Right hand side is some fixed negative number, left hand side $\to 0$ for $\varepsilon \to 0$: deviation profitable for ε small enough.

- Result: No equilibria where $g_R^* \leq g_R < g^m < g_L \leq g_L^*$

h. To find policy divergence in equilibrium politicians should not be able to commit to implement the same policy as announced during the elections once they are elected.