Seminar 3

ECON4921- Institutions and Economic Systems

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Consider Acemoglu and Robinson's (2001) paper on the extension of the franchise

Assignment I-1

Explain verbally the main building blocks of Acemoglu and Robinson's theory of democratization

Assignment I-1

1. Population:
   - ▶ Two groups: poor and elite
   - ▶ Utility from consumption
2. Market:
   - ▶ One good
   - ▶ Two production technologies: market and home
3. Politics:
   - ▶ (Re)Distribution of income: taxes and transfers
   - ▶ Political rule: elite rule, democracy, poor rule (after revolution)
   - ▶ Means by which rule can change: democratization, revolution
   - ▶ Stochastic cost of revolution

Assignment I-2

What does it mean that the "revolution constraint is binding"

Assignment I-2

$$V^p(R) > \tilde{V}^p(\mu^h, E) \tag{1}$$

- $V^p(R)$: Value function of the poor when they take power by revolution
- $\tilde{V}^p(\mu^h, E)$: Value function of the poor when $\mu = \mu^h$ and the elite are in power and neither redistribute nor democratize

Assignment I-2

Given that in that period revolution is not very destructive ($\mu = \mu^h$), the poor have a higher utility (today plus discounted future utility) if they start a revolution now compared with elite rule without redistribution or democratization,

i.e, the poor prefer to start a revolution if: there is no redistribution or franchise extension and the state of the world is such that the revolution is less destructive to the economy ($\mu = \mu^h$)

Assignment I-3

Explain the meaning of and compute the value functions of the poor, i. e. $V^p(R)$, $V^p(D)$, $V^p(\mu^l, E)$, and $V^p(\mu^l, E; \tau)$. Why does it help us knowing these? You can assume that the elites choose the highest possible tax rate when the labor movement is strong.

Assignment I-3

The value function represents the present discounted value of the entire future utility (payoff) of a decision taken now in terms of the value of the remaining decisions.

$$V^p(R) = \frac{\mu^h AH}{\lambda} + \beta[V^p(R)] = \frac{1}{(1-\beta)}\frac{\mu^h AH}{\lambda} \tag{2}$$

$$V^p(D) = \frac{Bh^p + (A-B)H}{(1-\beta)} \tag{3}$$

$$V^p(\mu^l, E) = Ah^p + \beta\Big[(1-q)V^p(\mu^l, E) + qV^p(\mu^h, E)\Big] \tag{4}$$

$$V^p(\mu^h, E, \tau^r) = (1-\tau^r)Ah^p + \tau^r AH + \beta\Big[(1-q)V^p(\mu^l, E) + qV^p(\mu^h, E, \tau^r)\Big] \tag{5}$$

Assignment I-3

$V^p(R)$

- ▶ Production: AH
- ▶ Production after revolution: $\mu^h AH$
- ▶ Shared by the poor: $\frac{\mu^h AH}{\lambda}$
- ▶ Add discounted future: $\frac{\mu^h AH}{\lambda} \beta [V^p(R)]$
  $= \frac{\mu^h AH}{\lambda} + \beta \frac{\mu^h AH}{\lambda} + \beta^2 \frac{\mu^h AH}{\lambda} + ...$

$$V^p(R) = \frac{1}{(1-\beta)} \frac{\mu^h AH}{\lambda} \qquad (6)$$

Assignment I-3

$V^p(D)$

1. Production: AH
2. Production of a poor agent: Ah^p
3. Post tax and transfer income of the poor: $(1 - \tau)Ah^p + T$
4. Optimal tax rate from the perspective of a poor agent:
   $\hat{\tau} = (A - B)/A$
5. The government budget constraint implies: $T = \tau AH$ using $\hat{\tau} \rightarrow$
   $T = (A - B)H$

Combine 3-5 to get per period income in democracy

$$y^p = Bh^p + (A - B)H \tag{7}$$

Add discounted future:

$$V^p(D) = \frac{Bh^p + (A - B)H}{(1 - \beta)} \tag{8}$$

Assignment I-3

$$V^p(\mu^l, E) = Ah^p + \beta\Big[(1-q)V^p(\mu^l, E) + qV^p(\mu^h, E)\Big] \qquad (9)$$

$$V^p(\mu^h, E, \tau^r) = (1-\tau^r)Ah^p + \tau^r AH + \beta\Big[(1-q)V^p(\mu^l, E) + qV^p(\mu^h, E, \tau^r)\Big] \qquad (10)$$

Assignment I-4

Discuss briefly what would happen if ..

1. ..revolutions become less destructive with a strong labor movement (higher μ^h)?

2. ..home production becomes more productive?

3. ..inequality increases?

Assignment I-4

Revolutions become less destructive with a strong labor movement (higher μ^h)

- Increases payoff from revolution, $V^p(R)$
- More likely that revolution happens irrespective of what elite do, i.e., Assumption 2 more likely to be violated
- If $q > q*$ then increased distribution

Assignment I-4

Home production becomes more productive

- ▶ Democratization becomes more likely
- ▶ Revolution becomes more likely (Assumption 2 more likely to be violated)

Assignment I-4

Inequality increases

- ▶ Revolution becomes more likely (see Assumption 1)
- ▶ Democratization becomes more likely

Assignment I-5

Consider an extension of the model where in democratic regimes, the elites can at certain times (when they are strong) commit a coup and revert to elite controlled government. How would this affect

1. The workers' valuation of temporary redistribution versus transition to democracy
2. The elites capability to avoid democratization

Assignment I-6

So far, China has followed a strategy not involving extension of the franchise. However, it may be argued that the Communist party's strong emphasis on infrastructure and industrial investments is a way to redistribute towards the poor. Discuss whether it could be that commitment problems are less severe when redistribution is through investments than pure transfers, and whether this can explain the lack of democratization in China. (You may consult Walløe (2012) for further discussions of these issues)

Assignment I-7

Which empirical predictions does Acemoglu and Robinson's theory have?
Explain why it is nontrivial to test these and how Aidt and Franck (2015)
overcome them.

Assignment I-7

- ► Main prediction: threat of revolution lead to democratization
- ► Problematic:
    - ► Perception of a threat vs. real threat
    - ► Forward looking agents and endogeneity
- ► Aid and Franck (2015)
    - ► Natural experiment: riots increase perceived threat
      $\rightarrow$ not direct measure of perception but credible story?
    - ► Lead to support of the reform

Consider Acemoglu et al.'s (2016) paper on the empirical effect of democracy on economic performance

Assignment II-1

Explain the fallacies of simply regressing GDP growth on political regime.
Pay particular attention to the effects of identification and dynamics.

Assignment II-1

1. Identification and endogeneity: reverse/simultaneous causality, omitted variables, measurement error... (everything we discussed in seminar 1)
2. Dynamics:
   ▶ Dip around democratization - democratization as a result of economic shock?
   ▶ Time varying unobservables, future dynamics

Assignment II-2

How do Acemoglu et al. attempt to solve the problem of democracy having a sluggish effect on economic performance?

Assignment II-2

In short, they attempt to control for dynamics using 3 different approaches:

1. Dynamic linear model
2. Semi-parametric approach
3. IV approach to control for time varying unobservables: regional waves (this approach deals with GDP dynamics in the same way as 1. but allows for time varying country heterogeneity)

Assignment II-2

1. Dynamic linear model

$$y_{ct} = \beta D_{ct} + \sum_{j=1}^{p} \gamma_j y_{ct-j} + \alpha_c + \delta_t + \varepsilon_{ct} \qquad (11)$$

▶ how: add lags of GDP (y_{ct-j}) as control variables
  $\rightarrow$ assumes linear GDP dynamics

▶ economic assumption is that conditional on the lags of GDP and country fixed effects, countries that change their democratic status are not on a differential GDP trend relative to countries that do not change democratic status

  $\rightarrow$ compare countries switching to or away from democracy with both democracies and autocracies

Assignment II-2

Semi-parametric approach:

- ▶ compare countries that democratize with non-democracies using three approaches:
    1. Estimate counterfactual development for democratizing countries based on non-democratizing countries using GDP lags and country fixed effects
    2. Propensity score matching: model probability of democratizing as an outcome of GDP dynamics (and country fixed effects) and compare countries that democratize to non-democracies that do not democratize but have similar propensity score (i.e. similar GDP growth processes as democratizing countries before the democratization)
    3. Combine elements of 1. and 2.
- ▶ Economic assumption is that conditional on lags of GDP there are no other factors that impact the propensity to democratize and GDP in other non-democracies

Assignment II-2

Compare approach 1. and 2.:

▶ 1. assumes linear functional form for relation of democratization with GDP dynamics, but allows for for time-invariant unobserved country characteristics to affect GDP

▶ 2. assumes unobservable country characteristics to be the same for all non-democracies that do not democratize and have similar GDP growth paths in the recent past, but does not restrict GDP dynamics to be linear

Assignment II-3

Consider Column (1) of Table 2. Compute the effect of a transition to democracy the first year and the second year. Why is the effect larger in the second year?

Assignment II-3

Dynamic linear model

$$y_{ct} = \beta D_{ct} + \sum_{j=1}^{p} \gamma_j y_{ct-j} + \alpha_c + \delta_t + \varepsilon_{ct} \tag{12}$$

TABLE 2: EFFECT OF DEM

	WITHIN ESTIMATES			
	(1)	(2)	(3)	(4)
Democracy	0.973	0.651	0.787	0.887
	(0.294)	(0.248)	(0.226)	(0.245)
log GDP first lag	0.973	1.266	1.238	1.233
	(0.006)	(0.038)	(0.038)	(0.039)
log GDP second lag		-0.300	-0.207	-0.214
		(0.037)	(0.046)	(0.043)
log GDP third lag			-0.026	-0.021
			(0.028)	(0.028)
log GDP fourth lag			-0.043	-0.039
			(0.017)	(0.034)
p-value lags 5 to 8				[0.565]
Long-run effect of democracy	35.587	19.599	21.240	22.008
	(13.998)	(8.595)	(7.215)	(7.740)
Effect of democracy after 25 years	17.791	13.800	16.895	17.715
	(5.649)	(5.550)	(5.297)	(5.455)
Persistence of GDP process	0.973	0.967	0.963	0.960
	(0.006)	(0.005)	(0.005)	(0.007)
AR2 test p-value				
Unit root test t-statistics	-4.79	-3.89	-4.13	-7.00
p-value (reject unit root)	[0.00]	[0.00]	[0.00]	[0.00]
Observations	6,790	6,642	6,336	5,688
Countries in sample	175	175	175	175

Try to solve assignment II 3 to II 5 by yourselves. We will look at the solution on October 26.