The Political Economy of Development: PPHA 42310
Lecture 4

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Consequences of the Regime

- The last two lectures looked at some research on why the nature and 'capacity' of states vary across time and space and what the consequences of this might be for economic development.
- A more traditional place to start would be to look at the regime, put the state into the background and focus on how the state is governed, what are the rules that determine who controls the state.
- The usual dichotomy is to contrast democracy and dictatorship.
- At root what we are interested in is what sorts of political institutions give rise to development.

Aggregating Interests

- Recall my discussion of Bates in the first lecture. If the farmers had political power then agricultural policy was better and so was economic growth.

- You might conclude from this (and the Grossman and Hart model of incomplete contracting) that it must be desirable to allocate power to whoever has the best, or most economically valuable, investment opportunities.

- This remark is meant to remind us that when thinking about the development consequences of political institutions it would be good to think about how they aggregate interests and what interests are likely to determine policy.

- But there are also interest free mechanisms, like accountability, that might be important.

Conceptualizing the Regime

- With that in mind; let's ask what happens in a dictatorship and what are the consequences for growth?
- The standard explanation is that policy/economic institutions are chosen by some sub-set of the population/elite, to maximize their payoff.
- This may naturally be bad for growth because an elite has less direct interest in public good provision to the extent that it cannot extract the rents from such provision (implicitly already a statement about state weakness, fiscal capacity?).
- But some dictatorships might be worse (Ghana in the 1970s) than others (Kenya in the same period).
- One of the most interesting models of dictatorship is that of Gerard Padró i Miquel.

Conceptualizing Dictatorship

- His motivation is to adapt a political agency model to a dictatorship in an 'ethnically divided society'.
- To do this he assumes there are two groups and the leader (dictator?) of either can stay in power with the support of their own group.
- Leaders are highly imperfect agents of their own group, which would like to discipline them, but institutions are weak and if you try to replace your own leader then you create turmoil and this runs the risk of the other groups coming into power. (Max Gluckman)
- The state is weak and you can only tax economic activities (coffee, cocoa,..) not people, though you can give people patronage (jobs?)

Padro i Miquel's Model

- Two infinitely lived groups, A and B. The size of group A is π^A, for a total mass of 1.
- Two economic activities, a and b.
- Groups are distinguished by two sets of characteristics:

1. Ascriptive characteristics: language, skin color... Unchangeable
2. Pre-tax return on economic activities:

-
   - Group A receives ω^a in activity a and $\omega^a - \theta^A$ in activity b.
   - Group B receives ω^b in activity b and $\omega^b - \theta^B$ in activity a.

Government Policy

- There is a Government that taxes activities and provides benefits.
- At any point in time, there is a ruler that belongs to one of the groups. Denote L^S the leader if he is from group $S \in \{A, B\}$.
- τ^{Sj} : tax level that a leader of group S levies on ACTIVITY j, $j \in \{a, b\}$.
- η^{Sk} : amount that leader of group S spends on benefits for GROUP k, $k \in \{A, B\}$.
- η^{Sk} provides utility $R(\eta^{Sk})$ to group k with $R' > 0$, $R'' < 0$ and $R(0) = 0$, $R'(0) > 1$. Group $-k$ receives no utility from η^{Sk}.

Results

- Let $z_t^k = 1$ if group k switches activities in period t.
- This economy has two fundamental states, $S_t \in \{A, B\}$, denoting the identity of the ruler in period t.
- The instantaneous utility of a citizen of group A in state S is thus:

$$C(S, z^A) = (1 - z^A)(\omega^a - \tau^{Sa}) + z^A(\omega^a - \theta^A - \tau^{Sb}) + R(\eta^{SA})$$

- Citizens value streams of consumption: $\sum_{t=0}^{\infty} \delta^t C_t$
- In equilibrium, a leader of group A obtains instantaneous utility:

$$U_t^A = \pi^A(\tau_t^{Aa} - \eta_t^{AA}) + (1 - \pi^A)(\tau_t^{Ab} - \eta_t^{AB})$$

Personal Rule

- Support from *own* group gives incumbency advantage: $\bar{\gamma}^S$ prob. of remaining in power.
- If the group does not support, the leader is automatically replaced and obtains 0 forever after.

  - Replacement is uncertain. The new leader belongs to S with prob. $\underline{\gamma}^S$, where $\underline{\gamma}^S < \bar{\gamma}^S$.
  - The government does not function in the period where there is replacement.

Timing

1. Leader L^S announces the policy vector $P_t^S = \{\tau_t^{Sa}, \tau_t^{Sb}, \eta_t^{SA}, \eta_t^{SB}\}$
2. Group S decides to subvert or not. $s_t^S \in \{0, 1\}$
3. All groups decide to switch or not. $z_t^A, z_t^B \in \{0, 1\}$
4. If $s_t^S = 0$, vector P_t^S is implemented. The state changes with probability $1 - \bar{\gamma}^S$.
5. If $s_t^S = 1$, the leader is ousted immediately and the "revolt" vector $P_r = \{0, 0, 0, 0\}$ is implemented. The state changes with probability $1 - \underline{\gamma}^S$

The Decision to Switch

- Backwards Induction: Start in stage 3.
- Assume $S_t = A$. The decision of B citizens to switch will be given by:

$$z_t^B = 1 \ \text{ iff } \ \omega^b - \tau^{Ab} < \omega^b - \theta^B - \tau^{Aa}$$

- Hence, the no-switch constraints are given by:

$$\tau^{Ab} \ \leq \ \theta^B + \tau^{Aa} \tag{1}$$
$$\tau^{Aa} \ \leq \ \theta^A + \tau^{Ab} \tag{2}$$

- In equilibrium, the leader wants to avoid switching.

Decision to Subvert

- Upon observing P^A, if there is no subversion ($s_t = 0$) A supporters obtain:

$$\omega^a - \tau^{Aa} + R(\eta^{AA}) + \delta\bar{\gamma}^A V^A(A) + \delta(1 - \bar{\gamma}^A)V^A(B)$$

Alternatively, if they subvert, $s_t = 1$, they expect:

$$\omega^a + \delta\underline{\gamma}^A V^A(A) + \delta(1 - \underline{\gamma}^A)V^A(B)$$

Hence the non-subversion condition reduces to:

$$\tau^{Aa} - R(\eta^{AA}) \leq \delta(\bar{\gamma}^A - \underline{\gamma}^A)(V^A(A) - V^A(B)) \qquad (3)$$

Results

- The leaders will respect (3) by subgame perfection. In equilibrium the continuation values for a citizen A can thus be expressed as:

$$V^A(A) = \omega^a - \tau^{Aa} + R(\eta^{AA}) + \delta\bar{\gamma}^A V^A(A) + \delta(1 - \bar{\gamma}^A)V^A(B)$$
$$V^A(B) = \omega^a - \tau^{Ba} + R(\eta^{BA}) + \delta\bar{\gamma}^B V^A(B) + \delta(1 - \bar{\gamma}^B)V^A(A)$$

Solve and plug into (3):

$$\tau^{Aa} - R(Z^{AA}) \leq \frac{\delta(\bar{\gamma}^A - \underline{\gamma}^A)}{1 + \delta(1 - \bar{\gamma}^A - \bar{\gamma}^B)}[\tilde{\tau}^{Ba} - R(\tilde{\eta}^{BA}) - \tilde{\tau}^{Aa} + R(\tilde{\eta}^{AA})]$$

Where the superscript $\sim$ denotes equilibrium values.

Leader's Problem

- The problem of ruler L^A:

$$\max_{\{\tau^{Aa}, \tau^{Ab}, \eta^{AA}, \eta^{AB}\}} \pi^A(\tau_t^{Aa} - \eta_t^{AA}) + (1 - \pi^A)(\tau_t^{Ab} - \eta_t^{AB}) + \delta W_{L^A}^A(A)$$

$$\text{subj.to} \qquad \tau^{Ab} \leq \theta^B + \tau^{Aa} \qquad\qquad [\lambda]$$

$$\tau^{Aa} \leq \theta^B + \tau^{Ab} \qquad\qquad [\nu]$$

$$\tau^{Aa} - R(\eta^{AA}) \leq \Phi^A \qquad\qquad [\mu]$$

In the Unique Equilibrium

- The solution of the static program:

$$
\begin{aligned}
\eta^{AB} &= 0 \\
R'(\eta^{AA}) &= \pi^A \\
\tau^{Aa} &= \Phi^A + R(\eta^{AA}) \quad\quad (4) \\
\tau^{Ab} &= \theta^B + \Phi^A + R(\eta^{AA}) \quad\quad (5)
\end{aligned}
$$

- Conditions (4) and (5) define a mapping between equilibrium expectations, Φ^A and current play.

Some Evidence

- Quite mixed. Kimuli Kasara found that the crops associated with the region of the president got taxed at higher rates.
- What about the patronage implication? That seems to fare better.
- Holder and Raschky ("Regional Favoritism," Quarterly Journal of Economics, 2014) build a panel dataset for sub-national political units of 126 countries between 1992 and 2009 and examine how the identity of the president of a country influences which regions do relatively well.

Table 5: Country-Crop Fixed Effects

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Dependent Variable	TaxN	TaxN	TaxN	TaxN	TaxR	TaxN	TaxN	TaxN
Executive Match	0.23***	0.30***	0.36****		0.07***	0.23***	0.22***	0.24***
	(0.05)	(0.07)	(0.07)		(0.03)	(0.05)	(0.05)	(0.06)
Contest	-0.08*	-0.03	0.05	-0.09**	-0.02	-0.08*	-0.06*	-0.09**
	(0.04)	(0.05)	(0.05)	(0.04)	(0.01)	(0.04)	(0.04)	(0.04)
Black Market Premium	-0.19**	-0.19**	-0.10*	-0.19***	-0.10**	-0.20***	-0.18**	-0.21***
	(0.07)	(0.07)	(0.05)	(0.07)	(0.04)	(0.07)	(0.07)	(0.07)
Log GDP per capita	-0.25***	-0.25***	-0.32***	0.25***	-0.04	-0.20***	-0.27***	-0.17*
	(0.09)	(0.09)	(0.10)	(0.09)	(0.04)	(0.07)	(0.09)	(0.10)
Executive Match * Contest		-0.12*	-0.18**					
		(0.07)	(0.07)					
Share of Agricultural Land (Pcagri)			0.04**					
			(0.02)					
Percent of Total Exports (Pcexport)			0.00*					
			(0.00)					
Average Tenure			0.00					
			(0.00)					
Coalition Match				0.20				
				(0.06)				
Log of World Price						1.76*		
						(0.59)		
IMF Agreement							-0.04	
							(0.03)	
Public Infrastructure								-0.01*
								(0.00)
Executive Match * Public Infrastructure								-0.00
								(0.00)
Constant	1.88***	1.83***	2.12***	1.86***	0.86***	1.76***	1.99***	1.40**
	(0.60)	(0.59)	(0.67)	(0.60)	(0.25)	(0.59)	(0.63)	(0.63)
N	748	748	604	748	1163	748	748	707
Groups	50	50	49	50	50	50	50	47
Adj-R²	0.48	0.48	0.45	0.47	0.58	0.48	0.48	0.50

Note: Robust standard errors are in parentheses. *p<0.10 **p<0.05 ***p<0.01

Kimuli Kasara (2007) "Tax me if you Can" American Political Science Review
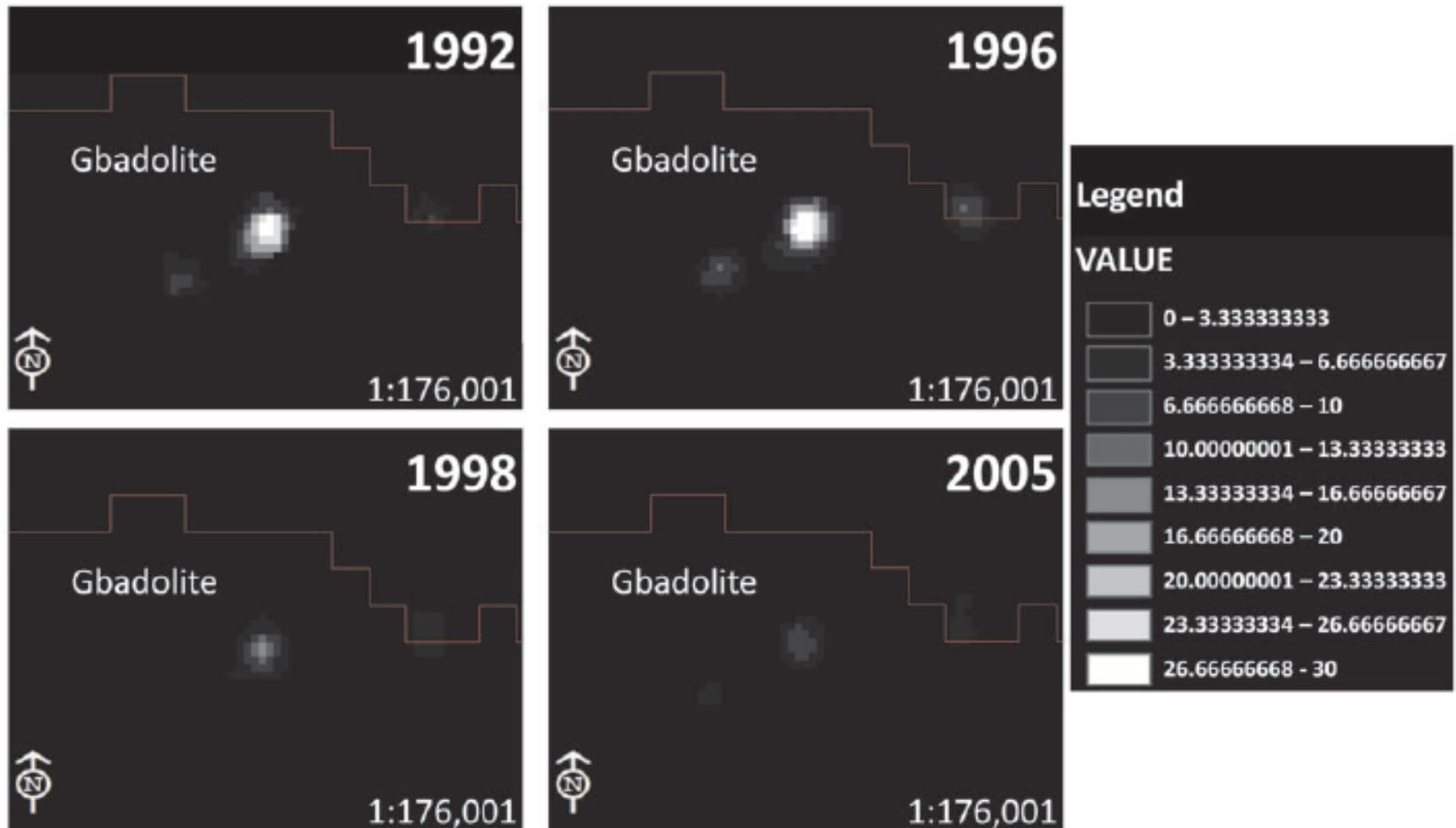
FIGURE I

Nightime Light Intensity in Gbadolite in 1992, 1996, 1998, and 2005

Mobutu Sese Seko was president of Zaire until 1997.

TABLE II
MAIN RESULTS AND ROBUSTNESS TESTS

Dependent variable	(1) $Light_{ict}$	(2) $Light_{ict}$	(3) $Light_{ict}$	(4) $Light_{ict}$	(5) $Light_{ict}$	(6) $Light0_{ict}$	(7) $Lightpc_{ict}$	(8) $RegionalGDP_{ict}$
$Leader_{ict-1}$	0.038*** (0.014)			0.019* (0.010)	0.061*** (0.010)	0.029** (0.013)	0.062** (0.024)	0.021*** (0.006)
$Leader_{ict}$		0.039*** (0.015)						
$Leader_{ict-2}$			0.041*** (0.013)					
$Light_{ict-1}$				0.400*** (0.023)	0.962*** (0.004)			
Pop_{ict}							−0.958*** (0.066)	−0.201*** (0.049)
Number of regions	38,427	38,427	38,427	38,427	38,427	36,591	37,475	1,207
Observations	690,495	690,495	689,870	652,362	652,362	619,594	673,382	14,995
R-squared	0.319	0.319	0.318	0.412	0.964	0.393	0.197	0.653
Region FE	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Country-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

TABLE V
DETERMINANTS OF REGIONAL FAVORITISM

Dependent variable	(1) $Light_{ict}$	(2) $Light_{ict}$	(3) $Light_{ict}$	(4) $Light_{ict}$	(5) $Light_{ict}$	(6) $Light_{ict}$
$Leader_{ict-1}$	0.262***	0.119***	0.196**	−0.008	0.008	−0.036
	(0.056)	(0.040)	(0.082)	(0.017)	(0.012)	(0.134)
$Leader_{ict-1} \times Polity_{ct-1}$	−0.298***					−0.240***
	(0.063)					(0.065)
$Leader_{ict-1} \times Schooling_{ct-1}$		−0.012***				−0.024***
		(0.004)				(0.007)
$Leader_{ict-1} \times NationalGDP_{ct-1}$			−0.019**			0.050***
			(0.009)			(0.018)
$Leader_{ict-1} \times Language_c$				0.120***		0.016
				(0.040)		(0.052)
$Leader_{ict-1} \times FamilyTies_c$					0.063**	0.035
					(0.032)	(0.034)
Number of regions	38,427	36,033	38,179	37,795	30,631	29,123
Observations	684,213	648,240	683,669	679,119	551,004	520,081
R-squared	0.320	0.330	0.320	0.318	0.308	0.313
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-year FE	Yes	Yes	Yes	Yes	Yes	Yes

Results

- The main dependent variable is night-time light intensity as a proxy for economic development. Clear challenges of inference - could be that relatively richer regions are more likely to elect presidents or be more politically powerful. Their strategy to control for this is the use of regional fixed effects (they are looking at the 'within variation').

- Regional favoritism is significant but lower in countries with more democratic political institutions (the effect is insignificant for countries with a Polity score of greater than 6 - Polity goes from -10 to +10) and also with more educated people. It gets worse the longer a leader is in power.

- Foreign aid makes regional favoritism worse in countries with relatively undemocratic political institutions.

The In-Group and the Out-Group?

- Padró-i-Miquel's model is inspired by case study literature which suggests the dominance of particular ethnic groups in Africa related to ethnicity.

- The paper by Francois, Rainer and Trebbi however casts some doubt on this. They find at the level of cabinets that ethnic groups are represented according to their weight in the population. If this is patronage then the equilibrium does not look like that in Padró-i-Miquel's model,

- This is not so surprising given the earlier literature on the one party state (e.g. Aristide Zolberg)

- FRT's explanation is that regime's face popular revolution threats from everywhere - not sufficient to have the support of your own people to stay in power, plus elites may mount coups.

Figure 2: Allocation of cabinet shares and population shares, full sample. 1960-2004
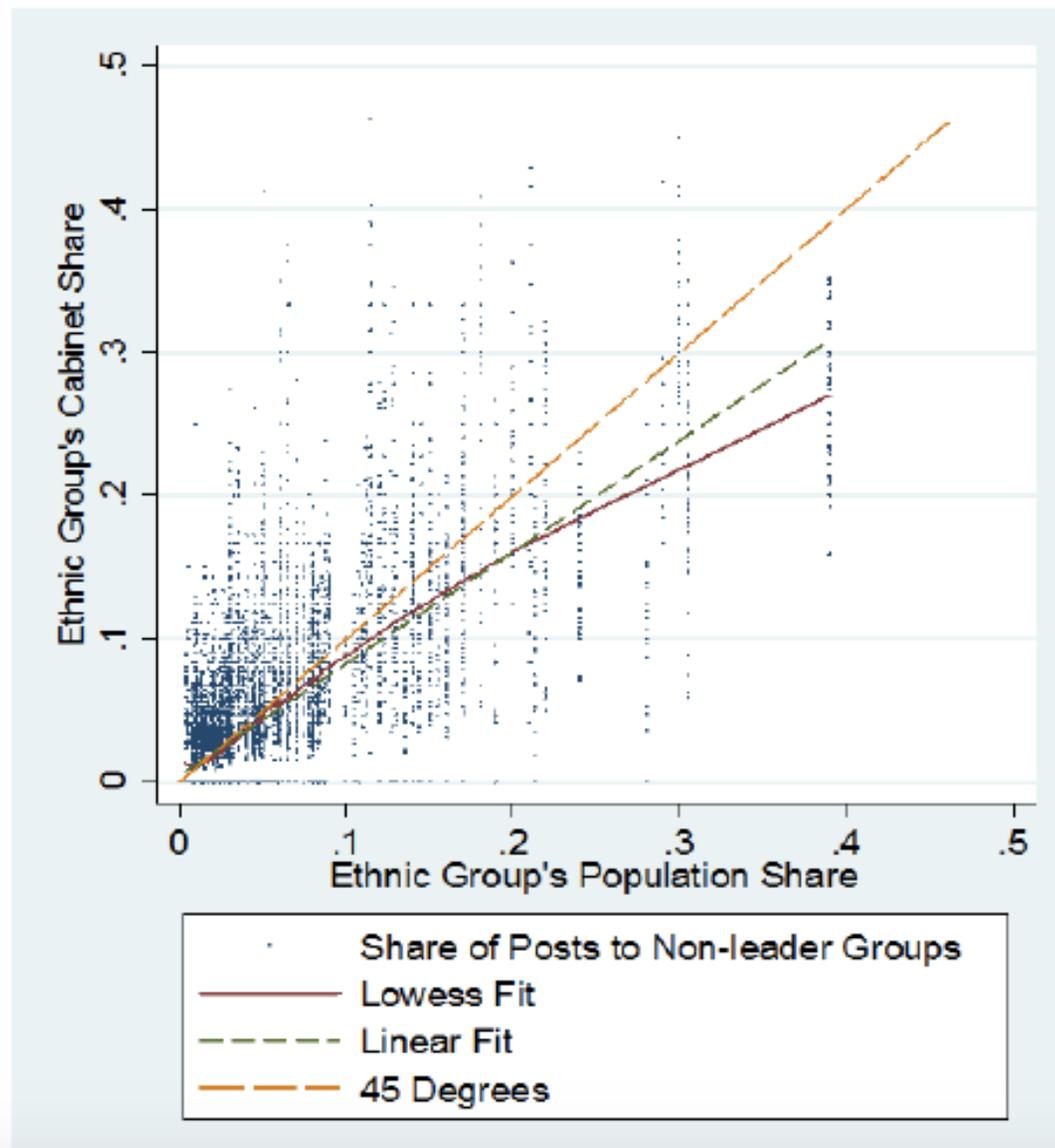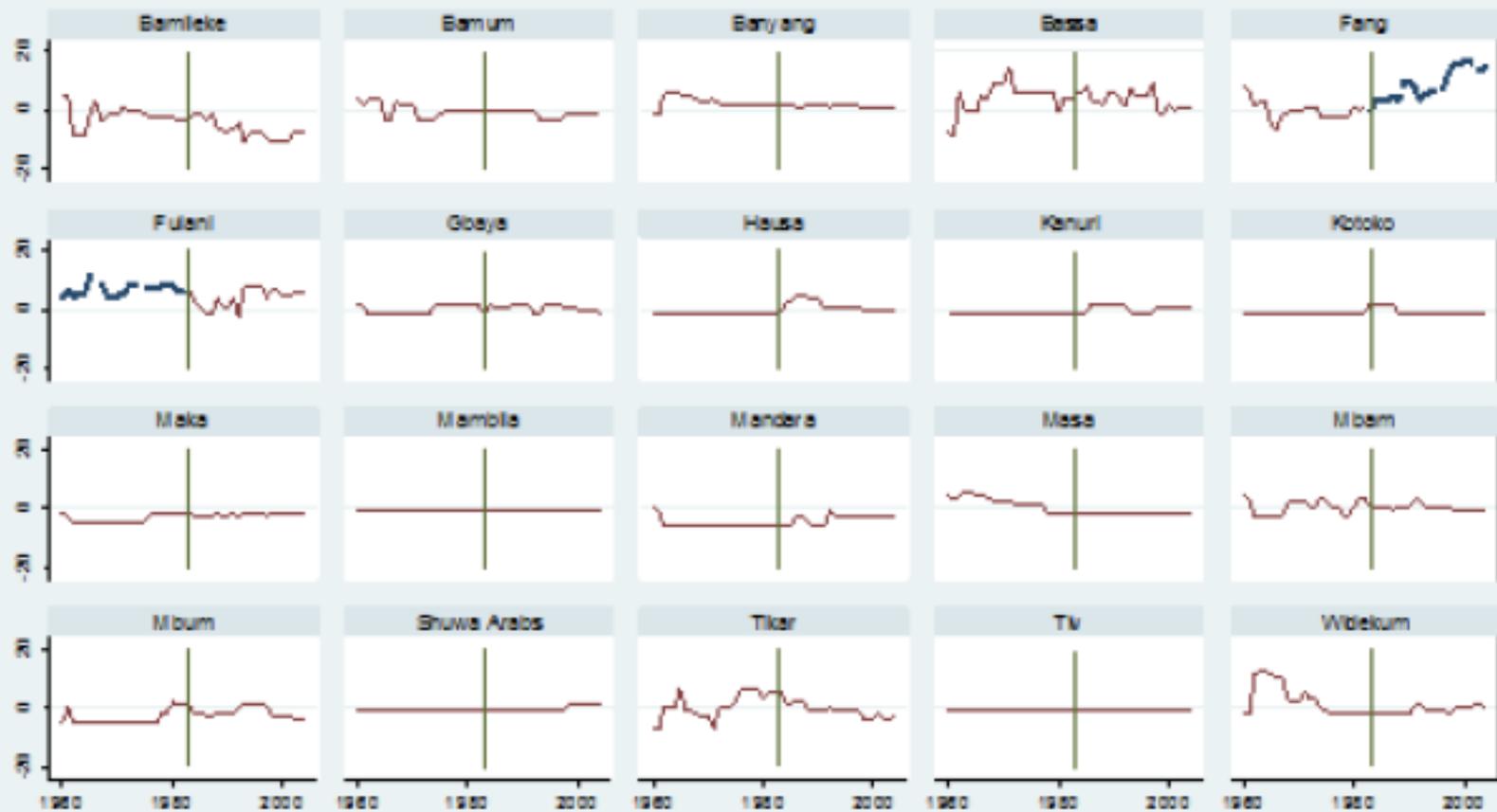
Share of Cabinet Seats - Pop. Share in Cameroon

Legend:
- If Leader Group
- If Not Leader
- Leader Transition
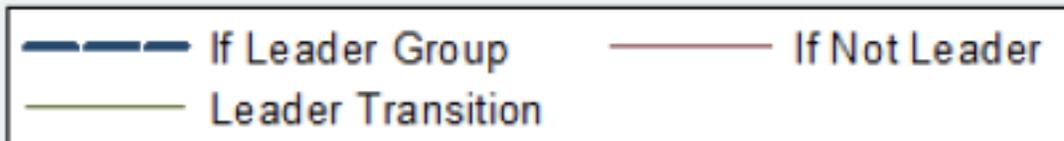
Graphs by Ethnicity
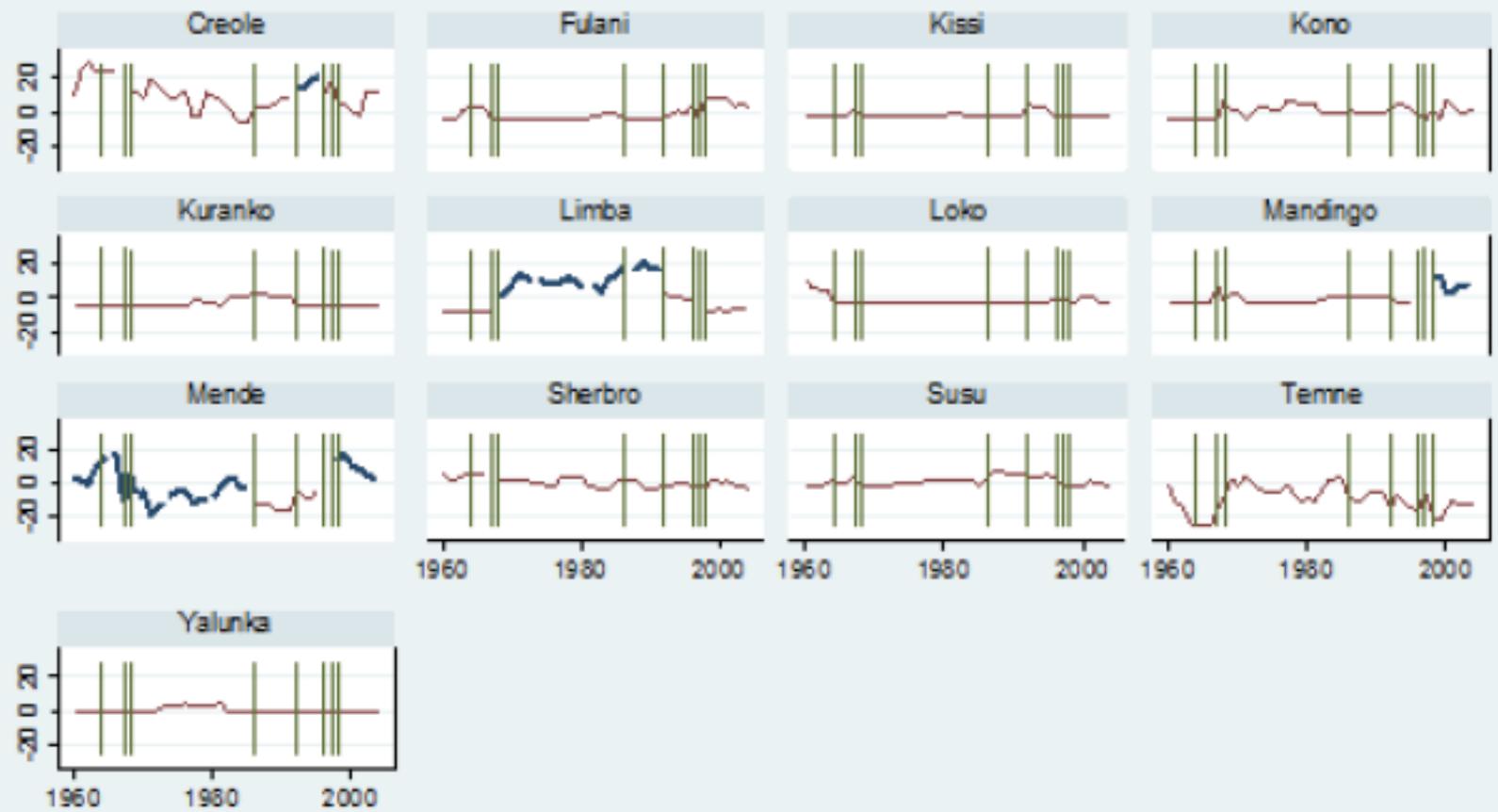
Share of Cabinet Seats - Pop. Share in Sierra Leone
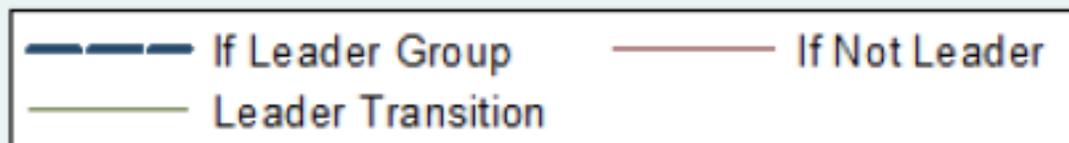
Graphs by Ethnicity

A Simple Model of Income Redistribution

- To make a comparison between dictatorship and democracy let me introduce the following model due to Meltzer and Richard.
- Consider therefore a society consisting of two sorts of individuals, the elite with fixed income y^r and the citizens with income $y^p < y^r$.
- Total population is normalized to 1, a fraction $1 - \delta > 1/2$ of the agents are citizens and the remaining fraction δ form the elite. Mean income is denoted by $\bar{y}$.
- θ is the share of total income accruing to the elite, hence, we have that:

$$y^p = \frac{(1-\theta)\bar{y}}{1-\delta} \text{ and } y^r = \frac{\theta\bar{y}}{\delta}. \tag{6}$$

Notice that an increase in θ represents an increase in inequality. Of course we need $y^p < \bar{y} < y^r$ which requires that

$$\frac{(1-\theta)\bar{y}}{1-\delta} < \frac{\theta\bar{y}}{\delta} \text{ or } \theta > \delta.$$

Policies

- The political system determines a nonnegative income tax rate $\tau \geq 0$, the proceeds of which are redistributed lump sum to all citizens. We assume that taxation is costly as before and from this it follows that the government budget constraint is:

$$T = \tau \left((1 - \delta) y^p + \delta y^r \right) - C(\tau) \bar{y} = \left(\tau - C(\tau) \right) \bar{y}. \qquad (7)$$

- With a slight abuse of notation, we now use the superscript i to denote social groups as well as individuals, so for most of the discussion we have $i = p$ or r. Using the government budget constraint, (7), we have that, when the tax rate is τ, the indirect utility of individual i and his post-tax income are

$$V \left(y^i \mid \tau \right) = \hat{y}^i \left(\tau \right) = (1 - \tau) y^i + \left(\tau - C(\tau) \right) \bar{y}. \qquad (8)$$

- All agents have single-peaked preferences and since there are more citizens and members of the elite, the median voter is a citizen.

- We can think of the model as constituting a game in which democratic politics will then lead to the tax rate most preferred by the median voter, here a relatively poor citizen.

- Notice that because they have the same utility functions and because of the restrictions of the form of tax policy (i.e., taxes and transfers are not person specific), all citizens have the same ideal point and vote for the same policy.

Characterization of the Equilibrium

- Let this equilibrium tax rate be τ^p. We can find it by maximizing the post-tax income of a citizen, i.e., by choosing τ to maximize $V(y^p \mid \tau)$. The first order condition for maximizing this indirect utility now gives

$$-y^p + \left(1 - C'(\tau^p)\right)\bar{y} = 0 \text{ with } \tau^p > 0, \qquad (9)$$

since $y^p < \bar{y}$. Equation (9) therefore implicitly defines the most preferred tax rate of a citizen, and the political equilibrium tax rate. For identical reasons to those in the previous subsection it is immediate that preferences are single-peaked.

- Now using the definitions in (6), we can write the equation for τ^p in a more convenient form:

$$\left(\frac{\theta - \delta}{1 - \delta}\right) = C'(\tau^p) \qquad (10)$$

where both sides of (10) are positive since $\theta > \delta$ by the fact that the citizens have less income than the elite.

Comparative Statics of the Equilibrium

- Equation (10) is useful for comparative statics. Most importantly, consider an increase in θ, so that a smaller share of income accrues to the citizens, or the gap between the elite and the citizens widens. Since there is a plus sign in front of θ, the left side of (10) increases.

- Therefore, for (10) to hold, τ^p must change so that the value of the right side increases as well. Since $C''(\cdot) > 0$, when τ^p increases the derivative increases, therefore for the right side to increase τ^p must increase. This establishes that greater inequality (higher θ) induces a higher tax rate.

- Or written mathematically using the implicit function theorem,

$$\frac{d\tau^p}{d\theta} = \frac{1}{C''(\tau^p)(1-\delta)} > 0.$$

From Democracy to Dictatorship

- Now we have a simple model of how democracy works and what policy it produces.

- There are many sorts of democracies and the model I have developed is institution free. How does the specification of the electoral system matter? Does it matter if there is a President or if the system is Parliamentary? We can think of all of these institutional details as inducing different mappings from preferences to policy outcomes.

- Now we need a model of dictatorships. The basic idea I will use is that dictatorship is rule by the elite.

- Dictatorships differ probably more than democracies do but models of dictatorships are very underdeveloped.

What Happens in a Dictatorship

- The simplest model is one where the elite simply sets their preferred tax rate $\tau^r = 0$. However, let me make this model a little richer. Imagine that in a dictatorship the poor can try to solve the collective action problem and mount a revolution (all we need really is that they can impose costs on the elite regime). This threat can lead policy to diverge from $\tau^r = 0$ because the elite want to keep the citizens happy enough that they will not want to revolt.

- In a post-revolutionary society the citizens divide the resources of the economy. However, it is plausible that a violent event like a revolution will create significant turbulence and destruction, and consequently reduce the productive capacity of the economy. So let us think that after revolution a fraction μ of the resources of the society are destroyed, and the remainder can be divided among the citizens.

A Dynamic Model

- I am now going to develop the dynamic model of dictatorship in Chapter 5 where the elite are in power but they are threatened by revolution.

- There is again population 1 of agents with a rich elite and poor citizens just as before, with fractions, δ and $1 - \delta$. But we are now in a dynamic world, so the production structure outlined previously applies in every period. In particular, pre-tax incomes are constant, and as before at each date. Individual utility is now defined over the discounted sum of post-tax incomes with discount factor $\beta \in (0, 1)$, so for individual i at time $t = 0$, it is

$$U^i = E_0 \sum_{t=0}^{\infty} \beta^t \hat{y}_t^i, \tag{11}$$

which simply gives a discounted sum of the individual's income stream, with E_0 defined as the expectation based on the information set available at time $t = 0$.

Revolutions

- The $1 - \delta$ poor citizens can overthrow the existing regime in any period $t \geq 0$. If a revolution is attempted, it always succeeds and is an absorbing state, but a fraction μ_t of the productive capacity of the economy is destroyed forever in the process.

- If there is a revolution at time t, each citizen receives a per period return of $(1 - \mu^S)\bar{y}/(1 - \delta)$ in all future periods. Here, after a revolution, μ^S is the value of μ_t at the date when the revolution took place (μ^H or μ^L). This implies that the state does not fluctuate once a revolution has taken place.

- μ changes between two values: $\mu^H = \mu$ and $\mu^L = 1$, with $\Pr(\mu_t = \mu) = q$ irrespective of whether $\mu_{t-1} = \mu^H$ or μ^L.

Bringing in Democracy and Repression

- I add two other instruments:
- I assume that the elite can democratize, give away their power. By re-allocating de jure power they make the promise of redistribution credible and thus avoid revolution. I assume for now that if created democracy always persists (it is an absorbing state).
- The paper "A Theory of Political Transitions" endogenizes the coup decision.... I present the simpler model here.
- Second, the elite can repress to avoid revolution.
- The model is from Chapter 6 of *Economic Origins of Dictatorship and Democracy*.

Timing of the Game

- The timing of moves in the stage game is now as follows.

1. The state $\mu_t \in \{\mu^L, \mu^H\}$ is revealed.
2. The elite decide whether or not to use repression, $\omega \in \{0, 1\}$. If $\omega = 1$, the poor cannot undertake a revolution and the stage game ends.
3. If $\omega = 0$, the elite decide whether or not to democratize, $\phi \in \{0, 1\}$. If they decide not to democratize, they set the tax rate τ^N.
4. The citizens decide whether or not to initiate a revolution, $\rho \in \{0, 1\}$. If $\rho = 1$ they share the remaining income forever. If $\rho = 0$ and $\phi = 1$ the tax rate τ^D is set by the median voter (a poor citizen). If $\rho = 0$ and $\phi = 0$, then the tax rate is τ^N.

The Costs of Repression

- Pre-tax incomes are as before except that now there can also be costs due to repression which affect net income. In particular, the post-tax net return of agent i is

$$\hat{y}^i = \omega \Delta y^i + (1 - \omega)\left((1 - \tau)y^i + (\tau - C(\tau))\bar{y}\right), \qquad (12)$$

where Δ is the cost due to repression with $\omega = 0$ denoting no repression and $\omega = 1$ denoting repression. We model the cost of repression as we did the costs of revolution.

- If the elite decides to repress then all agents lose some fraction of their income in the period of repression. We assume that $\Delta = 1 - \kappa$, which makes the effective cost of repression is equal to κy^i.

Timing of the Game

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1. The state $\mu_t \in \{\mu^L, \mu^H\}$ is revealed.
2. The elite decide whether or not to use repression, $\omega \in \{0, 1\}$. If $\omega = 1$, the poor cannot undertake a revolution and the stage game ends.
3. If $\omega = 0$, the elite decide whether or not to democratize, $\phi \in \{0, 1\}$. If they decide not to democratize, they set the tax rate τ^N.
4. The citizens decide whether or not to initiate a revolution, $\rho \in \{0, 1\}$. If $\rho = 1$ they share the remaining income forever. If $\rho = 0$ and $\phi = 1$ the tax rate τ^D is set by the median voter (a poor citizen). If $\rho = 0$ and $\phi = 0$, then the tax rate is τ^N.

- We can characterize the equilibria of this game by writing the appropriate Bellman equations. Define $V^p(R, \mu^S)$ as the return to citizens if there is a revolution starting in state $\mu^S \in \{\mu^L, \mu^H\}$. This value is given by

$$V^p(R, \mu^S) = \frac{(1 - \mu^S)\bar{y}}{(1 - \delta)(1 - \beta)}, \tag{13}$$

which is the per-period return from revolution for the infinite future discounted to the present. Also, because the elite lose everything, $V^r(R, \mu^S) = 0$ whatever is the value of μ^S. Moreover, recall that we have assumed $\mu^L = 1$, so $V^p(R, \mu^L) = 0$, and the citizens would never attempt a revolution when $\mu_t = \mu^L$.

- In the state (N, μ^L) the elite are in power and there is no threat of revolution, so in any Markov Perfect Equilibrium, $\phi = \omega = 0$ and $\tau^N = \tau^r = 0$. This just says that when the elite are in power and the citizens cannot threaten them, the elite do not repress and set their preferred tax rate which is zero.

- Therefore, the values of citizens and elite agents, $i = p$ or r, are given by:

$$V^i(N, \mu^L) = y^i + \beta \left[q V^i(N, \mu^H) + (1 - q) V^i(N, \mu^L) \right]. \qquad (14)$$

Revolution Constraint

- Consider the state (N, μ^H), where there is a nondemocracy, but it is relatively attractive to mount a revolution. Suppose that the elite play $\phi = \omega = 0$ and $\tau^N = \tau^r$, that is, they neither create democracy nor repress nor redistribute to the citizens. Then, we would have

$$V^p(N, \mu^H) = \frac{y^p}{1 - \beta}.$$

The *revolution constraint* is equivalent to: $V^p(R, \mu^H) > V^p(N, \mu^H)$, so that without any redistribution or democratization, the citizens prefer to initiate a revolution when $\mu_t = \mu^H$.

- This is equivalent to $\theta > \mu$ and says that revolution becomes attractive when θ is sufficiently high, i.e. when inequality is sufficiently high.

Avoiding a Revolution

- Since the revolution is the worst outcome for the elite, they will try to prevent it. They can do this in three different ways.
- First, the elite can choose to maintain political power, $\phi = 0$, but redistribute through taxation. In this case, the poor obtain $V^p(N, \mu^H, \tau^N)$ where τ^N is the specific value of the tax rate chosen by the elite.
- Second, the elite can create democracy.
- Finally the elite can use repression. Let $V^i(O, \mu \mid \kappa)$ be the value function of agent $i = p, r$ in state μ when the elite pursue the strategy of repression and the cost of repression is κ. We condition these values explicitly on κ to emphasize the importance of the cost of repression, and to simplify notation when we define threshold values below.

Continuations Values

- Even if the elite create democracy or attempt to stay in power by redistributing, the citizens may still prefer a revolution, thus:

$$V^p(N, \mu^H) = \omega V^p(O, \mu^H \mid \kappa) + (1 - \omega) \max_{\rho \in \{0,1\}} \rho V^p(R, \mu^H) +$$
$$(1 - \rho)(\phi V^p(D) + (1 - \phi) V^p(N, \mu^H, \tau^N)),$$

where $V^p(D)$ is the return to the citizens in democracy.

- Note here how the value of the citizens depends on the decision variables ω and ϕ of the elite. If $\omega = 1$ the the elite choose to repress, citizens cannot revolt and get the continuation value $V^p(O, \mu^H \mid \kappa)$. If $\omega = 0$ then what the citizens compare $V^p(R, \mu^H)$ to depends on the decision by the elite as to whether or not create democracy. If $\phi = 1$ then they choose between revolution and democracy. If $\phi = 0$ they choose between revolution and accepting the promise of redistribution at the tax rate τ^N.

Making Concessions

- We first focus on the trade-off for the elite between redistribution and democratization and then integrate repression into the analysis. The return to the citizens when the elite choose the redistribution strategy is:

$$V^p(N, \mu^H, \tau^N) = y^p + \tau^N(\bar{y} - y^p) - C(\tau^N)\bar{y}. \qquad (15)$$
$$+ \beta \left[q V^p(N, \mu^H, \tau^N) + (1-q) V^p(N, \mu^L) \right]$$

The elite redistribute to the citizens, taxing all income at the rate τ^N.

Creating Democracy

- The second strategy to prevent the revolution is to democratize, $\phi = 1$. Since $1 - \delta > 1/2$, in a democracy the median voter is a citizen and the equilibrium tax rate is τ^p and $T = (\tau^p - C(\tau^p))\,\bar{y}$. The returns to citizens and elite agents in democracy are therefore:

$$V^p(D) = \frac{y^p + \tau^p(\bar{y} - y^p) - C(\tau^p)\bar{y}}{1 - \beta} \text{ and} \qquad (16)$$

$$V^r(D) = \frac{y^r + \tau^p(\bar{y} - y^r) - C(\tau^p)\bar{y}}{1 - \beta}.$$

Does Democracy avoid a Revolution?

- I assume it does. The answer is not obvious. It might be that revolution in the state $\mu_t = \mu^H$ is so attractive that even democratization is not sufficient to prevent revolution.
- Democracy has to be sufficiently pro-citizen to avoid a revolution.
- This would be the case when $V^p(D) \geq V^p(R, \mu)$, which is equivalent to:

$$\mu \geq \theta - \left(\tau^p(\theta - \delta) - (1 - \delta)C(\tau^p)\right). \tag{17}$$

Understanding the Payoffs

If $V^p(N, \mu^H, \tau^N = \tau^p) < V^p(R, \mu^H)$, then the maximum transfer that can be made when $\mu_t = \mu^H$ is not sufficient to prevent a revolution. Notice that as long as (17) holds, we have that $V^p(D) \geq V^p(R, \mu^H)$. It is clear that we have $V^p(N, \mu^H = 1, \tau^N = \tau^p) > V^p(R, \mu^H = 1)$ since a revolution generates a zero payoff to the citizens forever. This implies that when $\mu^H = 1$ it must be the case that the value to the citizens of accepting redistribution at the rate τ^p in state μ^H is greater than the value from having a revolution. Also note that,

$$
\begin{aligned}
V^p(N, \mu^H &= 0, \tau^N = \tau^p) = y^p + (1 - \beta(1 - q))\left(\tau^p(\bar{y} - y^p) - C(\tau^p)\right) \quad (18) \\
&< V^p(R, \mu^H = 0) = \frac{\bar{y}}{1 - \delta}
\end{aligned}
$$

so that the payoff from a revolution must be greater when $\mu^H = 0$.

The Feasibility of Concessions

- Since $V^p(R, \mu^H)$ is monotonically increasing and continuous in μ, by the intermediate value theorem there exists a unique $\mu^* \in (0,1)$ such that when $\mu^H = \mu^*$

$$V^p(N, \mu^H, \tau^N = \tau^p) = V^p(R, \mu^H). \qquad (19)$$

- When $\mu < \mu^*$, concessions do not work so that the elite are forced to either democratize or repress. When $\mu \geq \mu^*$, they can prevent revolution by temporary redistribution, which is always preferable to them when the alternative is democratization. In this case the tax which the elite set, which as in the last section we denote by $\hat{\tau}$, will be set exactly to leave the citizens indifferent between revolution and accepting concessions under a nondemocratic regime, i.e. $\hat{\tau}$ satisfies the equation $V^p(N, \mu^H, \tau^N = \hat{\tau}) = V^p(R, \mu^H)$.

Payoffs from Repression

- To determine equilibrium actions, we need to compare the payoffs to the elite from staying in power using redistribution and from democracy to the costs of repression.

- Limit attention to situations where the elite play a strategy of always repressing.

- By standard arguments, these values satisfy the Bellman equations:

$$V^i(O, \mu^H \mid \kappa) = \Delta y^i + \beta \left[q V^i(O, \mu^H \mid \kappa) + (1-q) V^i(N, \mu^L) \right] \quad (20)$$

$$V^i(N, \mu^L) = y^i + \beta \left[q V^i(O, \mu^H \mid \kappa) + (1-q) V^i(N, \mu^L) \right],$$

which take into account that the cost of repression will only be incurred in the state where the revolution threat is active, i.e., when $\mu_t = \mu^H$.

Solutions

- Together with the definition for Δ, these Bellman equations can be solved simultaneously to derive the vales to the elite and citizens from repression,

$$V^r(O, \mu^H \mid \kappa) = \frac{y^r - (1 - \beta(1-q))\kappa y^r}{1 - \beta} \text{ and} \tag{21}$$

$$V^p(O, \mu^H \mid \kappa) = \frac{y^p - (1 - \beta(1-q))\kappa y^p}{1 - \beta}.$$

Repression or Redistribution?

- To understand when repression occurs we need to compare $V^r(O, \mu^H \mid \kappa)$ to $V^r(D)$ when $\mu < \mu^*$; and to $V^r(N, \mu^H, \tau^N = \hat{\tau})$ when $\mu \geq \mu^*$. We will now determine two threshold values for the cost of repression, this time called κ^* and $\bar{\kappa}$, such that the elite are indifferent between their various options at these threshold levels.

- More specifically, let κ^* be such that the elite are indifferent between promising redistribution at the tax rate $\tau^N = \hat{\tau}$ and repression, $V^r(O, \mu^H \mid \kappa^*) = V^r(N, \mu^H, \tau^N = \hat{\tau})$. This equality implies

$$\kappa^* = \frac{1}{\theta} \left(\delta C(\hat{\tau}) - \hat{\tau} \left(\delta - \theta \right) \right). \tag{22}$$

Repression or Democracy?

- Similarly, let $\bar{\kappa}$ be such that at this cost of repression, the elite are indifferent between democratization and repression, i.e., $V^r(O, \mu^H \mid \bar{\kappa}) = V^r(D)$, which implies that

$$\bar{\kappa} = \frac{1}{\theta(1 - \beta(1 - q))} \left(\delta C(\tau^p) - \tau^p (\delta - \theta) \right). \qquad (23)$$

It is immediate that $\bar{\kappa} > \kappa^*$, i.e., if the elite prefer repression to redistribution, then they also prefer repression to democratization.

- Therefore, we have that the elite will prefer repression when $\mu \geq \mu^*$ and $\kappa < \kappa^*$, and also when $\mu < \mu^*$ and $\kappa < \bar{\kappa}$.

The Main Result

Proposition 6.3 There is a unique Markov perfect equilibrium $\{\tilde{\sigma}^r, \tilde{\sigma}^p\}$ in the game $G^\infty(\beta)$, and it is such that

- If $\theta \leq \mu$, then the revolution constraint does not bind and the elite can stay in power without repressing, redistributing or democratizing.
- If $\theta > \mu$, then the revolution constraint binds. In addition, let be μ^* defined by (19), and κ^* and $\bar{\kappa}$ be defined by (22) and (23). Then:

1. If $\mu \geq \mu^*$ and $\kappa \geq \kappa^*$, repression is relatively costly and the elite redistribute income in state μ^H to avoid revolution.

2. If $\mu < \mu^*$ and $\kappa < \bar{\kappa}$, or $\kappa \geq \bar{\kappa}$ and (17) does not hold, or if $\mu \geq \mu^*$ and $\kappa < \kappa^*$, the elite use repression in state μ^H.

3. If $\mu < \mu^*$, (17) holds, and $\kappa \geq \bar{\kappa}$, in state μ^H the elite democratize.

When is Democracy Likely to Emerge?

- Democracy emerges as an equilibrium outcome only in societies with intermediate levels of inequality.

- In very equal societies, there is little incentive for the disenfranchised to contest power and the elite do not have to make concessions, neither do they have to democratize.

- In very unequal societies the elite cannot use redistribution to hang onto power, but since in such a society democracy is very bad for the elite, they use repression rather than having to relinquish power.

- Democracy emerges in times of crises.

- Democracy emerges when μ is sufficiently small. One can interpret this in terms of how organized he citizens are if this influences the cost of a revolution.

Other Mechanisms

- The framework is predicated on conflict over political institutions as the driving force behind democratization.
- Democracy and dictatorship are created by those who benefit from them fighting for them.
- One can also have different maybe more consensual models of democratization and after going through some models I want to discuss your ideas about alternative mechanisms.

An Alternative Approach to Democratization

- I have been emphasizing in the class that the dynamic model of democratization developed in *Economic Origins of Dictatorship and Democracy* is very flexible in the sense that it can incorporate many other different mechanisms which can induce democratizations or coups.

- While I personally find the approach we took convincing, there are obviously cases that don't fit this well, and phenomena which the model as formulated doesn't seem to capture. One obviously example is female enfranchisement. Though the suffragettes did burn David Lloyd George's house down I don't think they ever posed a threat of revolution or even such severe damage to the (male) enfranchised, that this forced democratization to be extended to women.

- Our argument was that once you have enfranchised all the men it is relatively costless to enfranchise all the women because it does not change the preferences of the median voter much. No doubt, however, there is more to it than this.

The Approach of Lizzeri and Persico

- In "Why did the Elites Extend the Suffrage?" Lizzeri and Persico propose a very clever alternative explanation of democratization.
- Their approach is based on several key ideas and observations.
  1. Prior to franchise extension elites competed amongst themselves.
  2. Political competition often leads to narrowly targeted private goods instead of socially desirable public goods which is collectively bad for the elite - almost like a prisoner's dilemma (the intuition is exactly as in my discussion of *Markets and States in Tropical Africa*).
  3. A potential solution is to broaden the franchise - when parties have to compete for more votes it becomes rational to offer public instead of private goods.

The Model

- The basic framework is probabilistic voting in the spirit of Lindbeck and Weibull.
- Two parties L and R which aim to maximize their vote share.
- Citizens divided into groups $i \in \{0, 1, .., N\}$. Each group i is of size n_i and each person i has ω_i units of income.
- Not all citizens can vote initially. Assume groups $0, 1, .., s$ can vote and $s + 1, .., N$ are disenfranchised. Extent of the franchise is the sum $\sum_{i=0}^{s} n_i$ who are 'the elite'.
- A public good can be produced using the technology $g(I, V)$ where I is in input of the private good. V is a parameter such that $g_V > 0$ and $g_{IV} > 0$ so higher V increases the value of public goods to the citizens.
- Each citizen has the utility function

$$U(c_i + g(I, V))$$

Political Game

- Individuals also care about ideology and each gets a utility benefit x for voting for party R. x is drawn from the distribution F_i with density f_i.
- Parties simultaneously choose platforms which are vectors $(I, c_1, ..., c_N)$ such that $I + \sum_{i=0}^{N} n_i c_i = \sum_{i=0}^{N} \omega_i$.
- Parties do not know the realization of x at the time policies are chosen.
- The model assumes that endowments can be completely taxed away so in effect policy chooses the individual consumption level of each person.

Voting

- Individual i votes for party L if

$$U(c_{i,L} + g(I_L, V)) - U(c_{i,R} + g(I_R, V)) > x$$

So the probability i votes for L is

$$F_i\left(U(c_{i,L} + g(I_L, V)) - U(c_{i,R} + g(I_R, V))\right)$$

Party L's vote share is therefore

$$S_L = \frac{1}{\sum_{j=0}^s n_j} \cdot \sum_{i=0}^s n_i \left[F_i\left(U(c_{i,L} + g(I_L, V)) - U(c_{i,R} + g(I_R, V))\right)\right]$$

Platform Choice

- Given the platform of R, L chooses a platform to solve the following problem

$$\max \ S_L \text{ subject to: } I + \sum_{i=0}^{N} n_i c_i = \sum_{i=0}^{N} \omega_i \text{ and } c_{i,L} \geq 0 \text{ for all } i.$$

Simple Redistribution - No Democratization

- Lizzeri and Persico first point out that if public goods are not in the model so that utility is $U(c_i)$ the elite opposes the extension of voting rights to the disenfranchised. This model is one of pure redistribution. In the elite equilibrium all income is taxed away and redistributed to the elite. If new voters are added, political competition will give them a share of the resources implying that there is less for the initial elite to redistribute amongst themselves. Therefore the elite will unanimously oppose democratization with no public goods.

- You could think of situations where this was not true. Imagine that adding new people changed the power relations amongst the existing elite in a way that gave some of this old elite more power and thus more resources. There paper by Llavador and Oxoby in the *QJE* about this.

Bringing Public Goods back in

- Lizzeri and Persico now characterize the political equilibrium with public goods. This results in the following:

Theorem

In a symmetric political equilibrium (1) If all voters are identical ($f_i(0) = f(0)$ for all i) then all voters received equal transfers and the provision of the public goods maximizes a utilitarian social welfare function of the elite. (2) If voters are heterogeneous and ranked so that ($f_0(0) > f_s(0)$) then (a) Voters in more responsive groups (smaller i) get more transfers. (b) For any s there is a $\tilde{V} > 0$ such that if $V < \tilde{V}$ then all groups in the elite get positive transfers and public good provision maximizes elite welfare. (c) For any s and any $m \in \{1, .., s\}$ there are $V_{MAX} > \bar{V} > \tilde{V}$ such that if $V_{MAX} > V > \bar{V}$ then groups $m, .., s$ get zero transfers and public goods are underprovided. If $V > V_{MAX}$ all resources are invested in the public good.

Interpretation

- The mechanism that drives under-provision of the public good is as in the lecture on Bates. If the value of the public good is relatively low, it will be attractive to target income to groups. Groups with higher densities (here those with lower i) will get more redistribution. It can be the case that groups closer to s get nothing (corner solution). In this case the non-negativity constraint on this group ($c_{i,L} \geq 0$) binds. The only way to reduce their utility is to under-provide the public good thus freeing up more resources to target to the groups with higher densities.

Democratization Leads to Greater Provision of Public Goods

Theorem

Extending the Franchise to groups $s + 1, .., s + K$ (for any $K = 1, .., N - s$) increases the equilibrium provision of the public good. The increase is strict unless all resources are already allocated to the public good.

- This result has a simple intuition. As voting rights are extended it becomes more rational for the parties to offer public goods in the course of political competition because they are non-rivalrous.
- This intuition is subject to the caveat that the newly enfranchised do not have high densities (and thus would also get a lot of transfers). You could imagine a model where enfranchisement led parties to abandon the old elite and target transfers to the newly enfranchised. This is ruled out by the assumption that densities are ordered and are lower for the initially disenfranchised.

Optimal Franchise Extension

Theorem

Suppose that voters in the elite are heterogeneous ($f_0(0) > f_s(0)$). For any s, there exists $V_{MAX} > \bar{V} > \tilde{V} > 0$ such that, (1) when V is such that $V_{MAX} > V > \bar{V}$ a majority of the elite strictly prefers any extension of the franchise to the status quo. Larger extensions are preferred to smaller ones. (2) for $V < \tilde{V}$ the elite unanimously opposes extending the franchise, (3) for $V > V_{MAX}$ the elite is indifferent to extending the franchise.

Intuition Behind the Result

- To prove this result one has to compute the expected utility of the elite under the different scenarios.

- Case 3 is the easiest to understand. From above if public goods are very valuable so that $V > V_{MAX}$ then all resources are being allocated to them already and thus the utility of the elite is independent of the size of the franchise since extending voting rights will not alter this.

- In case 2 public goods are not very valuable and all members of the elite get positive transfers. In this case extending voting rights will increase the extent of public good provision and reduce transfers to the elite. However, before democratization policy would have been set so that for each elite group the marginal utility of transfers was the same as the marginal utility of public good provision. Therefore, they cannot be made better off by increasing the amount of public good and reducing transfers. If this had made them better off then political parties would have offered this to start with. Hence all members of the elite oppose democratization.

The Interesting Case

- This leads case 1 as the interesting one. When $V_{MAX} > V > \bar{V}$ some groups get zero transfers and public goods are under-provided. Since expanding the franchise raises public goods supply, it increases the utility of any elite group that was initially getting zero transfers. By the argument I made above, however, it reduces the utility of any group that was getting positive transfers.

- The result basically shows that there is some value of the public good at which for any s a majority of the elite will be getting to transfers and thus support franchise extension.

How does Democratization Happen

- Obviously the elite never unanimously favor democratization so in the interesting case there is 'inter-elite' conflict. How this conflict is resolved will determine whether or not democracy gets created.

- Lizzeri and Persico look at a variety of models here including one where democratization is introduced into the policy space in the non-democratic model where only the elite can vote (parties L and R offer reform as well as redistribution and public goods).

Lessons from the Models

- Padró i Miquel's model explains why a dictator might use an inefficient policy in equilibrium even when he has lump sum taxes available.

- Because the state is weak he can't stop the out group pretending to be the in group. So he ends up discriminating against all economic activities (would be easy to introduce inefficiency here..) and using the inefficient thing he can target (a la Bates).

- In the Acemoglu-Robinson model the baseline is pure redistribution so it doesn't say much about public good provision. But the obvious extension would be to let preferences be $(1 - \tau)y^i + V(G)$ and taxes are used to fund the public good. Now a simple result is that the elite prefer inefficiently low levels of public goods, while the poor prefer (inefficiently so if median is less than mean income) higher level of public goods. Here democracy promotes public good provision as it does in Lizzeri and Persico.