The Economics of State Capacity

Weak States and Strong States

Ely Lectures

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LSE

Lecture 2:

- Yesterday, I laid out a framework for thinking about the dynamics of state capacity.

- Today, I will follow that up by getting into three issues that the framework can be useful in thinking about.
  - The genius of taxation – why high tax states can also be more productive.
  - A possible role for legal and colonial origins in shaping state capacity.
  - Conflict, economic development and state capacity

- In each case, I will sketch some arguments using the general framework developed in yesterday's lecture.

The Genius of Taxation

- The growth in the size of government was one of the most remarkable historical facts of the 20th century.

- It is remarkable how "sticky" this number has become in recent years and in the political debate.
  - This has been a puzzle in the political economy literature for some time.
  - The ideas that I developed yesterday based on the complementarity in state and market development suggest a tentative answer which is rather different to anything that has been proposed in the literature.

- For UK: Government expenditure as a % of gdp was (according to Angus Maddison):
  - 1913: 13.3
  - 1938: 28.8
  - 1950: 34.2
  - 1973: 41.5
  - 1999: 39.7
  - This includes both transfers and spending on goods and services.

Debates

- Is large government costly?

- Two different traditions:
  - benevolent government (left view) – growth of government reflects the fact that government does things well
  - private interest view (right view) – growth of government reflects abuse of power, rent-seeking etc.

- The answer I will offer will implicitly critique both the left wing and right wing take on the growth of government:

- Both view are politically naive:
  - left wing: fail to embrace the role of interests in policy
  - right wing: fail to understand that suppressing such interests is not feasible in democratic politics.

Evidence

- The literature has failed to find much of a relationship between size of government and growth.

- But this exercise is a fraught with difficulty

  - it is hard to get any kind of convincing causal evidence.

- Calibration exercises can suggest larger effects.

- But micro-evidence does not tend to get big effects of taxation on savings or labour supply margin.

Why taxation can be efficiency enhancing?

The positive economics of Diamond and Mirrlees

- I will extend the basic model from yesterday to include a labour market with quasi-rents.

- This may not be the most natural framework to discuss the issues in general, but it serves to make the point.

- Suppose now that $r_L = 0$ and with a fraction σ^J have the opportunity to develop a project using labor, ℓ^J, and capital using a constant returns to scale production technology written as $\ell^J Z\left(K^J\right)$
  - where $\eta(x) = -\frac{Z_{xx}(x)x}{Z_x(x)} \in [0,1]$, and K^J denotes the group J capital-labor ratio $k^J/\ell^J = w^J\left(1+p^J\right)/\ell^J$.
  - the remaining fraction $\left(1-\sigma^J\right)$ become laborers.
  - each individual is endowed with one unit of labor which is supplied inelastically.
- Let $K\left(p^A, p^B\right) = [\beta^A\sigma^A w^A\left(1+p^A\right) + \beta^B\sigma^B w^B\left(1+p^B\right)]/\ell$ be the aggregate capital labor ratio, where $\ell = \beta^A\left(1-\sigma^A\right) + \beta^B\left(1-\sigma^B\right)$ denotes the aggregate supply of labor.

- The equilibrium labor demand, $\hat{\ell}^J$, by a type J entrepreneur is determined from their choice of capital/labor ratio K^J which solves.

$$Z\left(K^J\right) - Z_x\left(K^J\right) K^J = W \ ,$$

where W is the economy wide wage rate.

- There is a common labor market where the equilibrium wage rate is $\hat{W}\left(p^A, p^B\right)$.

$$Z\left(K\left(p^A, p^B\right)\right) - Z_x\left(K\left(p^A, p^B\right)\right) K\left(p^A, p^B\right) = \hat{W}\left(p^A, p^B\right) \ .$$

- The equilibrium wage rate now depends upon the access to capital markets which is determined by p^A, p^B.

- Observe that:

$$\frac{\partial \hat{W}}{\partial p^J} = Z_x\left(K\left(p^A, p^B\right)\right) \cdot \eta\left(K\left(p^A, p^B\right)\right) \frac{\beta^J \sigma^J w^J}{\ell} > 0$$

  where $J \in \{A, B\}$.

- This formalizes the observation the wage rate is higher when more capital is productively employed in the economy.

- The per capita income of a "representative member" of group J when the levels of legal enforcement offered is p^J for them and p^K for the other group is:

$$\begin{aligned} \hat{Y}^J\left(p^J, p^K\right) &= \left(1-\sigma^J\right)\hat{W}\left(p^J, p^K\right) \\ &\quad +\sigma^J\left[\hat{\ell}^J Z\left(K^J\right) - \hat{W}\left(p^J, p^K\right)\hat{\ell}^J\right]. \end{aligned}$$

- Compared to the baseline model outlined yesterday, the main observation is that group J's income depend on group K's property rights, p^K, through the endogenous wage rate.
  - If group J is a net demander of labor, then it will prefer a lower wage rate which can be achieved if group K has less access to legal services.

Proposition 1 *If* $\overline{\rho} - \underline{\rho} = 0$ *or* $\tau = 1$ *legal capacity is always fully utilized. For high enough* σ^J*, there exists* $\hat{\tau}(\overline{\rho})$ *such that* $p^K = 0$ *for all* $\tau \leq \hat{\tau}(\overline{\rho})$

- Two key insights:
  - First, if there is no institutionalized polarization, ($\left(\bar{\rho} - \underline{\rho}\right) = 0$) we are guaranteed full use of legal capacity ex post.
  - Second, if political control matters ($\left(\bar{\rho} - \underline{\rho}\right) > 0$) and taxable capacity is low, then it is optimal for a ruling group to deny the use of the legal system to the other group completely.

The Equilibrium with a Weak State

- So why would any government wish to keep τ low
- This was something that we have already studied.
- But to illustrate this further, let's study a stark example.
- We simplify in three ways:
  - let $\beta^J = 1/2$, let $\alpha \in \{\alpha_L, \alpha_H\}$ with $\alpha_H > 1/2 > \alpha_L$ and let μ be the probability of α_H.

- Let $\bar{\rho} = 2$ and $\underline{\rho} = 0$. (weak institutions).

- Investment in fiscal capacity is costless.

Proposition 2 *For low enough γ^J and μ, then $\tau = 0$. Access to the legal system is denied to the group that is not in power.*

- Intuitively, the incumbent does not want to invest in the tax system as he fears that this will be used for expropriation.

- So ex post the new incumbent distorts production in his favor using an inefficient form of redistribution.

- There is a technologically feasible Pareto improvement
  - But given the structure of political institutions which are too weak and commitment is impossible, the economy is productively inefficient.
  - This will lead in turn to less investment in legal capacity.
- The commitment problem can be overcome if there is a way of developing common access to the legal system.

Private Accumulation and Institutional Dependence

- Recent empirical work across countries has emphasized the importance of historical differences in explaining contemporary economic performance.

- Two key examples:
  - colonial origins (Acemoglu-Johnson-Robinson)
  - legal origins (Shleifer et al)

- They find impacts variously on policies (protection of property rights), financial development and income per capita.

- These analyses uncover cross-sectional relationships between these measures and these historical variables.

- But one important question is why these effects are so persistent.

- There is also relatively little that can tie such empirical findings back to models of growth.

- The state capacity framework allows us to think about these issues and more generally how institutions shape development.
  - With specific capital in the form of state capacities and complementary private capital accumulation, then historical differences can be locked in.
  - Simplest way to illustrate this is to suppose that colonial origins may affect investment in τ and legal origins investment in π.

Private Accumulation

- Assume that individuals who have a high-return project at stage 1 now have access to an increasing and concave production technology in both time periods.

- This is denoted by:

$$y^J_{H,s} = Z(k^J_{H,s}) \ ,$$

with $\eta = -\frac{Z_{xx}(x)x}{Z_x(x)} \in [0, 1]$, and where $k^J_{H,s} = (1 + p^J_s)w^J_s$.

  - Thus having a return is now persistent at the individual level.

- We allow individuals in the high-return group to set aside a portion of their wealth in period 1 to augment their period 2 wealth.

- We assume that

$$w^J_{H,1} \leqslant w^J, \quad \text{and} \quad w^J_{H,2} = w^J + (w^J - w^J_{H,1}) \ . \tag{1}$$

  - To simplify the notation, we set $r_L = 0$.

- The accumulation decision is made before state capacity is chosen.

- Let $E\left(t_2^J\right)$ be the expected period two taxes faced by a member of group J.

- Then

  $\text{Max}_{w^J_{H,2}} \ Z[(w^J_{H,1}(1+\pi_1)](1-t_1^J) + Z[w^J_{H,2}(1+\pi_2)]\left(1 - E(t_2^J)\right)$,

  subject to (1).

Proposition 3 *Accumulation for both groups, $w^J_{H,2}$, $J \in \{A; B\}$, is increasing in period-2 legal capacity π_2. Accumulation is decreasing in period-2 fiscal capacity τ_2 as long as public goods are valuable enough.*

- Consider a first-order approximation to the economy's growth rate around the point where $\pi_2 = \pi_1$ and $w^J_{H,2} = w^J_{H,1} = w^J$. This yields:

$$\frac{Y_2 - Y_1}{Y_1} \simeq \frac{\sum_J \beta^J \sigma^J Z_k[(1+\pi_1)w^J][w^J(\pi_2 - \pi_1) + (1+\pi_1)2(w^J_{H,2} - w^J)]}{Y_1} \tag{2}$$

- For a minute, ignore fiscal capacity issues and assume that the production function has a constant elasticity $\eta < 1$

- Then

$$\frac{w^J_{H,2}}{w^J_{H,1}} = (1 + g_w) = (1 + g_\pi)^{\frac{1-\eta}{\eta}}$$

Then the growth rate is:

$$g_Y = (1 + g_\pi)^{1-\eta} - 1.$$

Corollary 4 *Consider a change in the environment that raises investments in state capacity $\{\pi_2, \tau_2\}$. Compared to the economy without private accumulation, we get an additional positive effect on growth, via the positive effect of π_2 on accumulation, and a negative effect on growth, via the negative effect of τ_2 on accumulation.*

- This gives us a way of thinking about the Solow residual in terms of institutions and historical features.

- The effect that institutions and legal origins etc affect g_π, there will be an effect on growth which would normally appear as residual items in standard growth regressions.

- Economies with different institutional development paths may have a continual advantage.

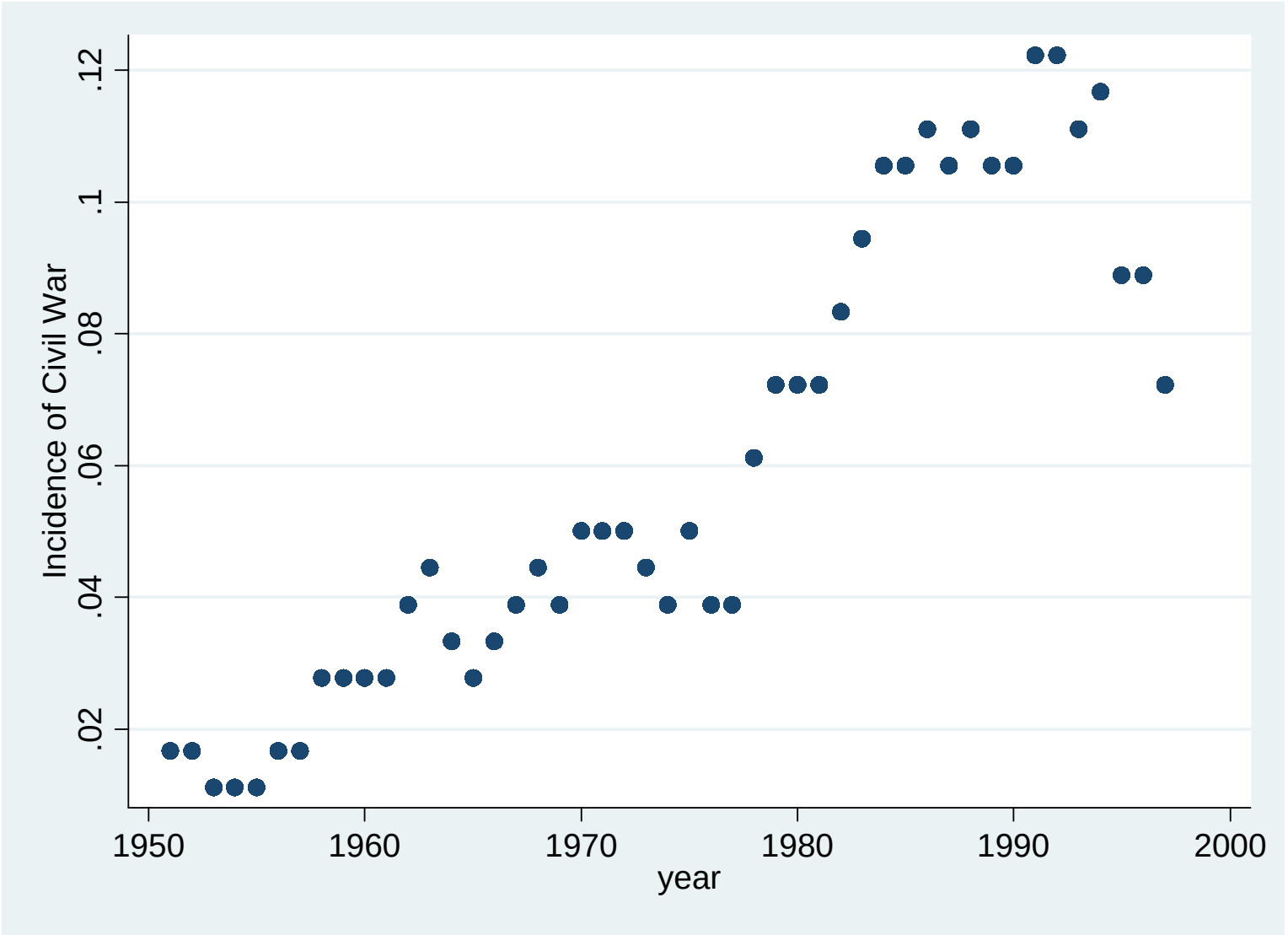
- Currently extending these ideas to think about institutions for the protection of intellectual property.

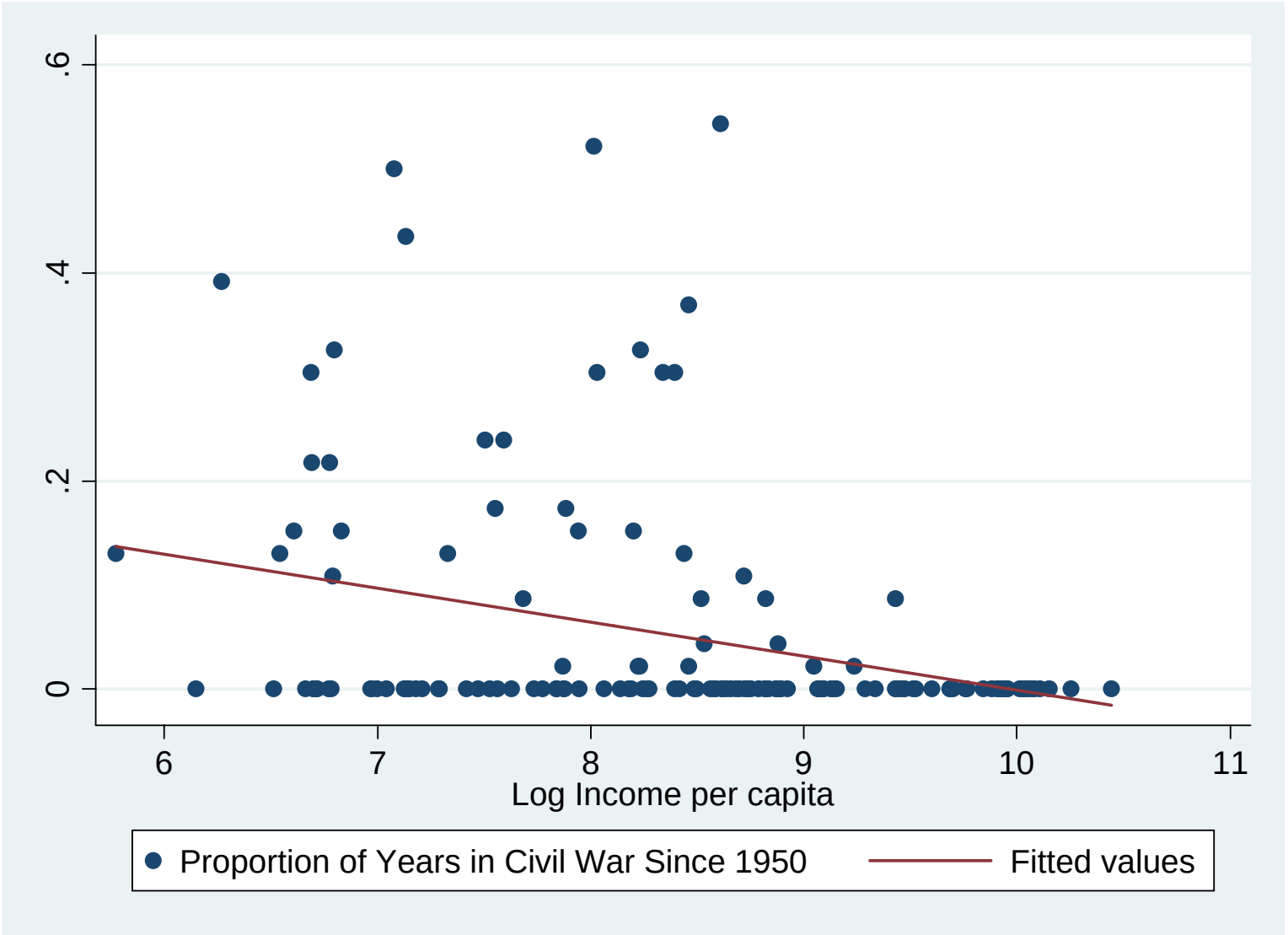
Conflict

- There is a lot of recent discussion of the role of civil conflict in shaping state and economic development.

- The most salient result in a largely empirical literature is that poor countries fight civil wars much more often than rich countries.

- For the sake of illustration, I plot the incidence of civil war over time and the relationship between civil war and income per capita.


Incidence of Civil War
.02
.04
.06
.08
.1
.12
1950
1960
1970
1980
1990
2000
year


.6
.4
.2
0
6
7
8
9
10
11
Log Income per capita
Proportion of Years in Civil War Since 1950
Fitted values

- The main interpretations of this result takes economic development to be exogenous and argues either that citizens in poor countries have a low opportunity cost of fighting, or that poor countries have little state capacity to clamp down on an insurgency.

- But a satisfactory conceptual framework must treat the level of economic development, wages and state capacity as endogenous.

- We will now use the apparatus that we have developed to look at these issues.

- Here the aim is provide a framework for thinking harder about patterns in the data.
  - the model will suggest some ideas that could be useful in identifying a model.

Questions

- How does the ability to finance insurgency and government response affect the likelihood of conflict?
- Can the risk of civil war become a trap in which government has no incentive to invest in market supporting activities?
- What correlations should we observe between the incidence of civil war and development?
- Which are the underlying determinants of civil war and development?

- To address some of these issues, I am going to introduce a way of thinking about how state capacity affects conflict.

- This is a first step towards understanding how conflict it affects the path of state development.

- Will only have time to sketch a few ideas.

The Technology of Conflict

- At each date, a government and an opposition group is inherited from the past: $I(s-1)$, $O(s-1)$
- Each group has a "wage" $w^J\left(p_s^J\right)$.
- The probability that the government survives is:

$$\gamma^O\left(L_s^{O(s-1)}, L_s^{I(s-1)}\right)$$

where L denotes resources spent on an army.

- The opposition has an (exogenously given) resource for fighting $L_s^{O(s-1)} \leq \nu$.

- Suppose that each group is of equal size and there is no institutional protection for the opposition.

- We also allow for natural resource rents to R_s which accrue to the state (which gives a further potential incentive to fight).

- The government army is financed out of tax revenue.

Timing

1. The initial conditions are $\{\tau, \pi\}$ and the identity of the incumbent group $I(s-1) \in \{A, B\}$.

2. The value of public goods α_s and natural resource rents R_s are realized.

3. Group $O(s-1)$ chooses the level of any insurgency $L_s^{O(s-1)}$.

4. The government chooses the size of its army $L_s^{I(s-1)}$.

5. Group $I(s-1)$ remains in office with probability $1-\gamma^O\left(L_s^{I(s-1)}, L_s^{O(s-1)}\right)$. The winning group becomes the new incumbent $I(s)$ and determines policies, i.e., a vector of tax rates, property rights and spending on public goods: $\left\{\left\{t_s^J, p_s^J\right\}_{J\in\{I(s),O(s)\}}, G_s\right\}$

6. Payoffs for period s are realized and consumption takes place.

Policy

- Let

$$Z_s = \sum_J t_s^J w^J \left(p_s^J\right) + R_s$$

  be total tax revenue at s.

- Military spending is:

$$w_s^{I(s-1)} L_s^{I(s-1)}.$$

- Assume that (since military spending is committed before final control of power) military wages are paid by winner.

Common interests: $\alpha_s > 1$

- In this case, the winner will always choose:

$$p_s^J = \pi;\ t_s^J = \tau \text{ and } G_s = Z_s.$$

- In this case, there would be no conflict as it would not be optimal for the opposition to mount an insurgency.

Private interests: $\alpha_s < 1$

Policy

- In this case, $G_s = 0$, $t^{O(s)} = \tau$ and $t^{I(s)} = 0$.

- But Diamond and Mirrlees still holds: $p_s^J = \pi$.

The Strategy of Conflict

- Define:

$$\underline{Z}_s = \frac{\left[1-\gamma^O\right]\left(w_s^{I(s-1)}/\xi\right)}{\mu}$$

and

$$\bar{Z}_s = \frac{2w_s^{O(s-1)} + \gamma^O\left(w_s^{I(s-1)}/\xi\right)}{\mu}.$$

Assumption 1:

(*a*) *The technology for conflict satisfies:* $\gamma^O\left(L^O, L^I\right) = \mu\left[L^O - \xi L^I\right] + \gamma^O$

(*b*) $\mu\xi \leq \gamma^O \leq 1 - \mu\nu$

(*c*) $w^{O(s-1)}(\pi) \geq \frac{\left(1+\gamma^{O(s-1)}\right)}{2} \cdot \frac{w^{I(s-1)}(\pi_s)}{\xi}$ *for* $O(s-1), I(s-1) \in \{A, B\}$.

(*d*) $\frac{\left(R_H - \bar{Z}_s\right)}{w_s^{I(s-1)}\xi} < \nu$

Now we have:

Proposition 5 *There are three possible regimes:*

1. *If* $Z_s < \underline{Z}_s$*, the outcome is peaceful with* $\hat{L}_s^{O(s-1)} = \hat{L}_s^{I(s-1)} = 0$*.*

2. *If* $Z_s \in \left[\underline{Z}_s, \bar{Z}_s\right]$*, there is no insurgency* $\hat{L}_s^{O(s-1)} = 0$*, but the incumbent government chooses an army to repress the opposition such that:*

$$\hat{L}_s^{I(s-1)} = \frac{Z_s - \underline{Z}_s}{2w_s^{I(s-1)}}.$$

3. *If $Z_s > \bar{Z}_s$, there is a civil war where the opposition mounts an army of size*

$$\hat{L}_s^{O(s-1)} = \frac{Z_s - \bar{Z}_s}{w_s^{I(s-1)}/\xi},$$

and the government chooses an army of size:

$$\hat{L}_s^{I(s-1)} = \frac{1}{w_s^{I(s-1)}} \left[Z_s - \frac{\bar{Z}_s + \underline{Z}_s}{2} \right].$$

The Anatomy of Conflict

- Higher τ is generally bad for conflict – since it increases the gains from capturing the state and using for private gain.

- Natural resources are also bad for conflict.

- Higher wages general reduce conflict – reduce expenditures within a conflict regime and shift the conflict thresholds: $\left(\bar{Z}_s, \underline{Z}_s\right)$ downwards.

- So for exogenously given wages, the model delivers the (obvious) link between economic development, natural resources and conflict.

Dynamics

- But the challenge is to think of these issues in a dynamic setting to tie it together with the process of economic and state development

- This could be by modeling either private investment that affects wages or collective investments in state capacity.

A Conflict Trap

- It is straightforward to introduce private investment and to see that the possibility of conflict creates strategic complementarities.

- Suppose that group O can make a discrete investment which costs ω and raises its productivity by Δ with$\Delta > \omega$

- Suppose that natural resources are $\hat{R}$, that $\tau = 0$.

- Now suppose that:

$$\Delta \left[1 - \frac{\hat{R} - \bar{Z}_s}{w_s^{I(s-1)}/\xi} \right] < \omega$$

and

$$\Delta > \frac{\left(\hat{R} - \bar{Z}_s\right)\mu}{2}.$$

- Then there are two equilibria:
  - One with $\hat{L}^{O(s-1)} = 0$ and investment by group O.
  - The other with no investment by group O and conflict.

Implications for Investment in State Capacity

- While the counterfactual is difficult, there are reasons to think that conflict is bad for fiscal capacity, but need not be bad for legal capacity.

- To the arguments that we have uncovered already, conflict leads to "rent dissipation" which means that it is not worthwhile to invest in fiscal capacity.

- But a government may choose not to invest in sufficient legal capacity to reach the threshold which ends conflict.

  - given the current structure, legal capacity is universally beneficial and has an extra role in reducing conflict.

Summing Up

- These lectures have looked at some issues that arise in studying the dynamic evolution of the state.

- The organizing idea has been the role for state capacities which reflect purposive specific investments.

- One general lesson is that there is a role for institutions in studying the capacity of the state as distinct from state policies.

- The analysis suggests trying to understand the links:

$$\text{institutions} \longrightarrow \text{state capacities} \longrightarrow \text{policies}$$

- By giving a role for specific investments, it also suggests the possibility of new empirical as well as theoretical work on development issues.

Some Issues for the Future

- Creation of common interests
- Micro-economics of state capacity.
- International interdependence in creation of state capacity.