

Institutions, Growth, and Development

Jonathan Colmer

University of Virginia

Lecture Notes for PhD Growth and Development (EC8510)



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James A. Robinson

University of Chicago,
IL, USA

"för studier av hur institutioner formas och påverkar välbefinnande"

"for studies of how institutions are formed and affect prosperity"

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Institutions

- ▶ While it's not clear that only one of our fundamental explanations has to explain everything, many economists emphasize the importance of institutions.

"Institutions are the rules of the game in a society or, more formally, are the human devised constraints that shape human interaction"... "in consequence they structure incentive in human exchange, whether political, social, or economic."

Douglas North (1990)

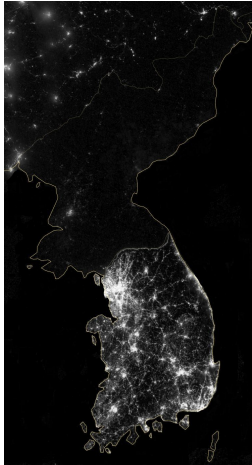
What is an Institution?

- ▶ Institutions make rules, enforce rules, and are the way we decide who makes rules.
- ▶ Economic institutions – property rights, markets, monopolies, etc.
 - ▶ Possibly related to “wedges” (τ in [Hsieh and Klenow \(2009\)](#))
 - ▶ Determined by political power
- ▶ Political power is determined by:
 - ▶ De jure institutions: democracy, constitutions, etc.
 - ▶ De facto institutions: guns, tanks, and money.

The Basic Argument

- ▶ Countries with extractive institutions do badly.
- ▶ Countries with inclusive institutions do well.
- ▶ Extractive institutions is determined by:
 - ▶ Long arm of history (critical junctures)
 - ▶ Stickiness of institutions
- ▶ Why are institutions sticky?
 - ▶ Political Coase theorem doesn't hold
 - ▶ Lack of commitment.

We Know that Institutions Matter



We Know that Institutions Matter

- ▶ But, North Korea is an extreme case.
 - ▶ We want to know how general this case is.
- ▶ Could still be a matter of taste.
 - ▶ Is it common knowledge that things could be better?
- ▶ If yes, why do bad institutions persist?
 - ▶ Why not move to a more efficient system, which would create more for the elite to extract?

The Political Coase Theorem

- ▶ Institutions should maximize efficiency because we should be able to trade to make it happen
 - ▶ This tends to imply convergence in institutions.
- ▶ Modified political Coase theorem allows for some differences in beliefs between countries about what are efficient institutions
 - ▶ e.g. Sweden vs. U.S.
- ▶ Thinking about the Coase theorem gives a point of departure – we can ask “why doesn’t the Coase theorem hold?”.
- ▶ What is the market failure?

A Simple Model of Commitment and Institutions

- ▶ Farmer and a King
- ▶ Farmer chooses effort $e \in [0, 1]$
- ▶ Output A with probability \sqrt{e} and 0 with probability $1 - \sqrt{e}$
- ▶ Expected output:

$$A\sqrt{e}$$

- ▶ Farmer chooses effort and has utility

$$M - e$$

Where M is monetary earnings.

First Best

- ▶ Utility is maximized at the point,

$$\max_e (A\sqrt{e} - e)$$

- ▶ Implies,

$$e = \left(\frac{1}{2}A\right)^2$$

- ▶ Output,

$$x = \frac{A^2}{2}$$

- ▶ If King can commit to lump sum taxation then we get the first best.

Taxation

- ▶ What if King can only commit to tax rate τ

- ▶ Farmer solves,

$$\max_e (1 - \tau)A\sqrt{e} - e$$

- ▶ Implies,

$$e = \left(\frac{(1 - \tau)A}{2} \right)^2$$

- ▶ Output,

$$x(\tau) = \frac{(1 - \tau)A^2}{2}$$

- ▶ Clearly decreasing in τ .

Where does τ come from?

- ▶ The king sets τ . Total income is,

$$Y(\tau) = x(\tau) + z$$

- ▶ King earns $\tau Y(\tau)$
- ▶ Timing:
 - ▶ Producer puts in effort e
 - ▶ King chooses τ
 - ▶ Output is realized
 - ▶ Expropriation takes place
 - ▶ z is natural resources.
- ▶ Note the lack of commitment.

Equilibrium

- ▶ Sub-game perfect Nash equilibrium

$$\tau = 1 \text{ and } e = 0$$

- ▶ For any $Y(\tau) \geq 0$ the coercive authority will set $\tau = 1$.
- ▶ Anticipating this producers expend no effort and output is zero.

Pareto Inferior Output

- ▶ The outcome is pareto inferior.
- ▶ Both the King and farmer want to produce more and tax less!
- ▶ Optimal rate of expropriation

$$\begin{aligned}\tau^* &= \operatorname{argmax}_{\tau \geq 0} \{\tau Y(\tau)\} \\ &= \frac{A^2 + 2z}{2A^2} \geq \frac{1}{2}\end{aligned}$$

- ▶ King would like to commit, but can't
- ▶ It's not possible for the King to give good institutions so the whole thing falls apart.

Long Live the King

- ▶ Suppose the game is repeated and discounting $\delta \in (0, 1)$
- ▶ Consider a promise from the king to set $\hat{\tau}$ forever,
- ▶ Discounted value of his payoff:

$$V^P(\hat{\tau}) = \frac{\tau Y(\hat{\tau})}{1 - \delta}$$

Incentives

- ▶ The King will be tempted to cheat.
- ▶ The producer can punish the expropriator by setting $e = 0$ for ever after a defection.
- ▶ Payoff from deviating

$$V^d(\hat{\tau}) = Y(\hat{\tau}) + \frac{\delta}{1-\delta}z$$

Equilibrium

- ▶ $\hat{\tau}$ is sustainable if

$$V^p(\hat{\tau}) \geq V^d(\hat{\tau})$$

- ▶ i.e., if

$$\hat{\tau} \geq (1 - \delta) + \delta \left(\frac{z}{z + x(\hat{\tau})} \right)$$

- ▶ The higher is δ the lower the level of expropriation can be sustained in equilibrium.

Interpretation

- ▶ Recall, the low ($\hat{\tau}$) equilibrium is just one of the equilibria (folk theorem).
- ▶ It might be reasonable to focus on the most efficient,
 - ▶ Social norms are one interpretation of how equilibria are chosen.
 - ▶ Perhaps history tells us which of these equilibria is played.

Interpreting δ

- ▶ How certain is it that the individual will continue in power?
 - ▶ How stable is the environment?
- ▶ Strong despots are better for growth!
 - ▶ China?
- ▶ Point is very general: a strong dictator can allow economic growth because they know that they can continue to expropriate a lot of growth.

Interpreting z

- ▶ Notice that the higher is z the harder it is to commit (i.e., the higher is \hat{t}).
- ▶ As z increases $\frac{z}{z+x(\hat{t}u)}$ increases to 1 and only high expropriation equilibrium is sustained.
- ▶ Why? because there is little that the farmer can do to punish the king.
- ▶ A resource curse prediction.

What are we missing?

- ▶ North Korea?
- ▶ As the size of the pie increases, the king may fear an increase in power for the farmer – this isn't modeled.
- ▶ The paranoia of the totalitarian state.

Source of Better Institutions?

- ▶ How could we do better?
- ▶ Suppose that the king cares for the population – or for some portion of the population.
- ▶ The king puts a weight λ on the utility of the farmer.
 - ▶ A measure of how inclusive decision-making is.
 - ▶ A measure of cultural affinity
 - ▶ A simple measure of democracy (government by the people).

Inclusive Institutions

- ▶ We'll ignore z because the point has been made.

- ▶ In a static model the king solves,

$$\tau(\lambda) = \operatorname{argmax}_{\tau} \{ [\tau + \lambda(1 - \tau)] A \sqrt{e} - \lambda a \}$$

which equals 1 so long as $\lambda \leq 1$

- ▶ So we still have full expropriation in the static setting.
- ▶ With a complete inability to commit, inclusive decision making makes no difference.

Inclusive Institutions - Repeated Game

- ▶ Repeating the logic from above, we see that:

$$\hat{\tau} \geq 1 - \frac{\delta}{1 - \lambda + \delta\lambda/2}$$

- ▶ The higher is λ the better.
- ▶ More likely to sustain inclusive institutions.
- ▶ Of course, this is again only one possible outcome in this game.

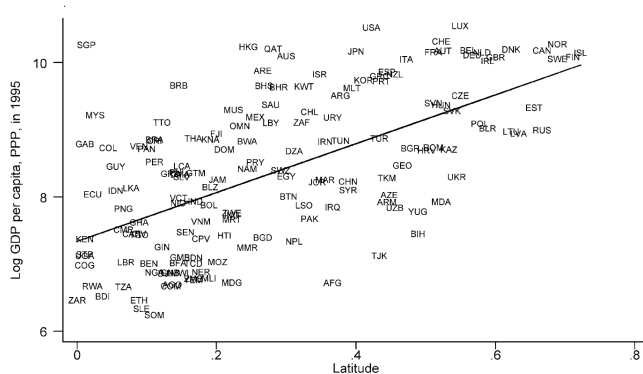
The Role of Political Institutions

- ▶ The model is easy to extend to give a more formal role to democracy:
 - ▶ Increases the likelihood of coordination from many peasants
- ▶ Multiple equilibria
 - ▶ With democracy and high output
 - ▶ Without democracy and low output

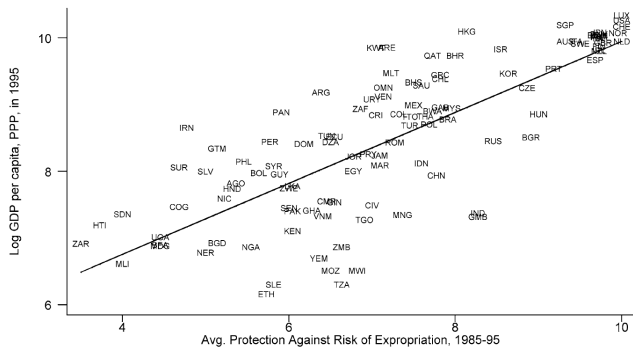
Summary

- ▶ Political Coase Theorem doesn't hold due to a lack of commitment.
- ▶ A strong dictator or certain environment discourages extraction.
- ▶ Inclusive decision making discourages extraction.

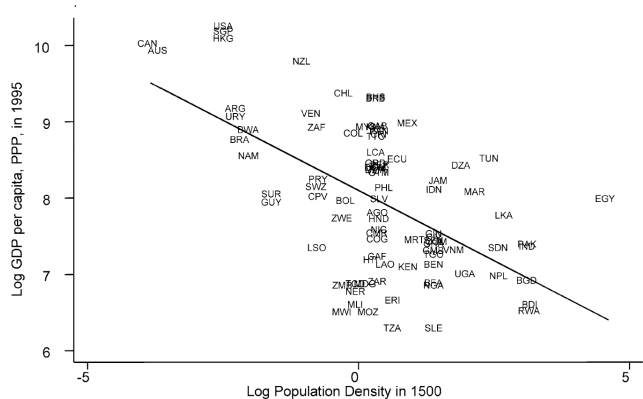
The Geography Hypothesis



The Institutions Hypothesis



A Reversal of Fortune



Reversal of Fortune

- ▶ Tends to rule out geography hypothesis
 - ▶ Allows still for a sophisticated geography hypothesis
- ▶ Prior to the reversal, it was the tropics that were dominant!
- ▶ Culture: consistent – we will get back to this in a second.

Reversal of Fortune: Interpretation

- ▶ The institutions interpretation
 - ▶ In countries that had an existing strong system colonizers set up extractive institutions to remove wealth.
 - ▶ In countries with weak systems, colonists moved in and brought with them inclusive institutions.
- ▶ Note that the argument requires persistence of institutions.

Colonial Origins

- ▶ We would like to have an instrument for institutions.
- ▶ An extension of the reversal of fortune argument:
 - ▶ When Europeans wanted to settle, they established their own institutions.
 - ▶ If they did not want to settle, they established extractive institutions (note: relate to λ)
- ▶ Suggests that whatever determines ability to settle will determine short term institutions, which if sticky, will have long term effects on those institutions.

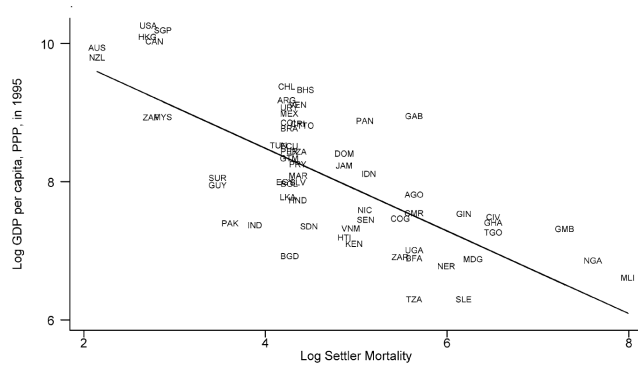
Colonial Origins

- ▶ The disease environment at the time of first colonization determines whether Europeans decided to settle.
- ▶ The disease environment can be understood by measuring the portion of settlers that died: the settler mortality rate.
- ▶ To the extent that the original disease environment is no longer relevant for determining development today, the disease environment can be used to understand the effect of different kinds of colonization strategies.

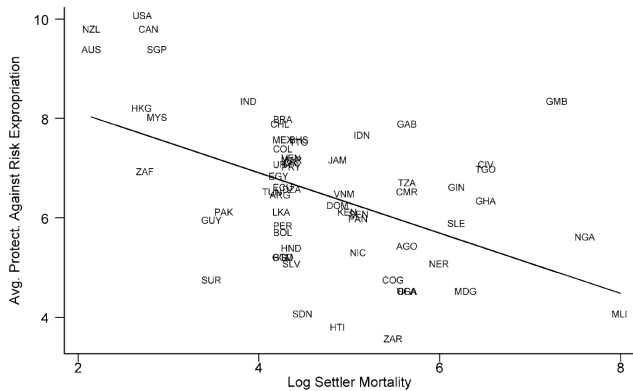
Measuring Settler Mortality

- ▶ Work by the historian Philip Curtin provides mortality rates of soldiers stationed in the colonies in the early 19th century.
- ▶ This is supplemented by data on mortality of Catholic bishops in Latin America.
- ▶ A reply paper by David Albouy claims this data is not great and the results are sensitive.
- ▶ The reply to the reply claims that this is not the case.
- ▶ When dealing with big historical questions, data is always going to be a problem.

Reduced Form



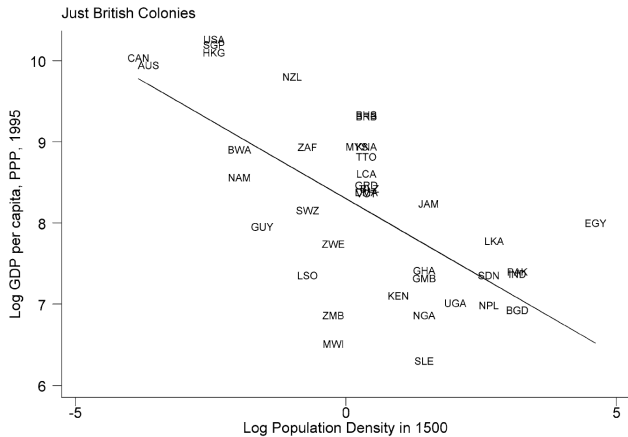
First Stage



Regression Results

- ▶ Religion has no effect
- ▶ Latitude has no effect
- ▶ Current disease environment has no effect
- ▶ Size of coastline has no effect.
- ▶ What else could the instrument have changed?

Culture?



Human Capital?

- ▶ Glaeser et al. are not convinced.
 - ▶ Argue that human capital caused growth and growth caused institutions.
 - ▶ An interesting argument, worth taking into account.
 - ▶ We should always ask, if we are interested in policy, what can we actually change?
- ▶ If it's human capital, we must ask, why is it so persistent?
- ▶ Why does it continue to work where there are now no Europeans?

Implications

- ▶ If we believe the results, we learn that:
 - ▶ Institutions are sticky
 - ▶ Institutions matter for long run development
- ▶ How much do they matter?
 - ▶ “Almost all of the difference” if you believe the linear regressions!

Macro vs. Micro

- ▶ The macro literature provides compelling prima facie evidence for a causal link.
- ▶ But, literature is limited in its ability to:
 - ▶ disentangle the effects of specific channels
 - ▶ understand the effect of institutional change on growth
- ▶ A more micro-approach has greater potential
 - ▶ Policy-induced variation in specific institutions within countries.
 - ▶ The incentives provided by a given institutional context often varies with an individuals' economic and political status.
- ▶ Goldstein and Udry (2008) provide a nice example of this.