

Institutions and efficiency

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Detriments to total factor productivity

Across the world there are huge differences in total factor productivity (TFP). These differences reflect to what extent countries have adopted the latest technologies, something we can illustrate using the Romer model along with the leader-follower model discussed in the previous lecture. Now as mentioned before, TFP is a very broad measure of how efficient a country/economy is in using its resources. As such TFP accounts for a number of factors that potentially have a detrimental effect on output growth including

- Bureaucratic inefficiency
 - Red tape is an important diversion of resources in poor economies¹
- Corruption
 - Bribing officials reduces public revenues
 - On the other hand, it does help alleviate some of the bureaucratic inefficiencies
- Crime
 - Crime diverts resources away from more productive activities
 - Same goes for the resources devoted to protecting citizens and firms
 - This equally applies to violent conflict
- Market mechanism restrictions
 - e.g. central planning, price controls, protectionism
 - Lead to inefficient allocation of resources

¹ Wikipedia informs us that the term red tape is thought to have originated during the administration of Charles V of Spain, and that the red tape used to bind important administrative dossiers generally came from a town called 's-Hertogenbosch in the Netherlands.

The role of institutions

Although adopting new technologies impacts TFP², a unanswered question is what actually drives this process in less developed countries. To answer this question we have to consider the underlying determinants of economic success, and a popular approach in economics is to look at the role of institutions. Important contributions on this topic have been made by Douglas North, who remarks that

² As we saw with Hong Kong and Singapore.

the economic models used account for differences between economic performance related to differences in savings rate, education level, etc., however they do not account for the failure of certain economies to undertake the activities that have a higher payoff. He argues that the institutional framework that determines the level of payoff, specifically

"If the highest rates of return in a society are to be made from piracy, then organizations will invest in knowledge and skills that will make them better pirates; if organizations realize the highest payoffs by increasing productivity then they will invest in skills and knowledge to achieve that objective."

The term institutions can be a bit vague, but broadly we can distinguish between

- Economic institutions
 - Includes all kind of regulations and laws
 - e.g. property rights, patent law, credit arrangements
- Political institutions
 - Includes institutions that regulate the limits on political power and the change of power
 - e.g. constitution, constraints on the executive branch, electoral rules

Following the influential work by Acemoglu & Robinson we can also distinguish between predatory and developmental institutions. Predatory institutions are those that do not encourage investment and economic development. In a sense they are extractive. Developmental institutions in contrast are those that encourage investment and growth.

The Koreas

North and South Korea present an interesting illustration of the importance of institutions determining the success of an economy. Shortly after the Second World War, the former allied countries clashed in the Korean War (1950-1953) which split the country along the 38th parallel in a communist North and capitalist South. North Korea, a socialist republic, received support for many years from the Soviet Union but that dried up after the end of the Cold War. To this day the country remains a planned economy under one-party rule.³ In contrast to the North, South Korea followed Japan in adopting export-oriented policies and it has been quite a success.⁴ Despite a common culture and identity the two countries have developed along

³ Basically it is a monarchy with a personal cult surrounding the Kim family.

⁴ Notwithstanding the current political scandals also involving Samsung, the countries largest company.

different path, and this difference is clearly illustrated using night light luminosity as a proxy for economic activity.

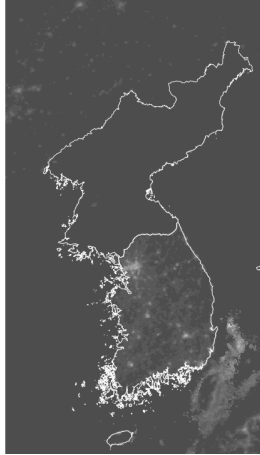


Figure 1: Night light luminosity in North and South Korea. Data: NOAA

Estimating the role of institutions

There has been a surge in research on the role of institutions, estimating the effect of institutional quality on economic performance using econometric methods. An early example of this approach is the paper by Hall & Jones (1999) which we discussed previously. Besides focusing on total factor productivity they also provide a regression analysis using cross-country data fitting the following model

$$\frac{Y_i}{L_i} = \alpha + \beta S_i + \epsilon_i$$

S the effect of institutions is estimated using two different variables

1. An index of government antidiversion policies, which is an average of five different variables relating to
 - (a) Law and order
 - (b) Bureaucratic quality
 - (c) Corruption
 - (d) Risk of expropriation
 - (e) Government repudiation of contracts
2. An index capturing openness of trade with other countries

Estimating a model like this entails that we have to be aware of two important econometric problems

$\frac{Y}{L}$ is output per worker in country i and S the variable that aims to capture the extent to which institutions in country i facilitate economic activity.

1. Endogeneity

- Do countries have i) good institutions because they are rich, or do they ii) become rich because of good institutions
- In case of i the relationship becomes

$$S_i = \gamma + \delta \frac{Y_i}{L_i} + \theta X_i + v_i$$

- regressing $\frac{Y_i}{L_i}$ on S_i will give a positive estimate of β even if the true value is 0

2. Measurement error

- Variables measuring institutional quality are just proxies
- Measurement error will bias coefficient downwards⁵

⁵ OLS coefficient will be less than true coefficient.

In the presence of these econometric issues, the estimation will produce biased estimates. The direction of the bias depends of course on its source. One often used solution to circumvent these issues is the use of instrumental variables, meaning that β is estimated using

$$\frac{Y_i}{L_i} = \alpha + \beta \hat{S}_i + \epsilon_i$$

\hat{S}_i is a fitted value from a regression of S on a set of instruments⁶. The variation in institutions is here explained by exogenous factors that are not determined by economic performance, and as such they can be used to estimate the true causal effect. That is, when one uses a good instrument of course. Within this strain of the literature one can identify some popular sources for instruments.

⁶ i.e. exogenous variables may be correlated with the institutions variable but are not affected by the country's level of output per worker.

1. Geography

- e.g. latitude (as used by Hall & Jones), distance to sea, rainfall is immensely popular

Geography is certainly exogenous as it is not influenced by a country's level of prosperity. There are some exceptions of course, such as the Dutch who, since the Middle Ages, created about half of their country reclaiming land from the sea.

2. History

- Colonialism serves as an important source
- Many countries around the world were colonised by various European countries and their current institutions are often determined, in a somewhat random fashion, by which countries colonised them.

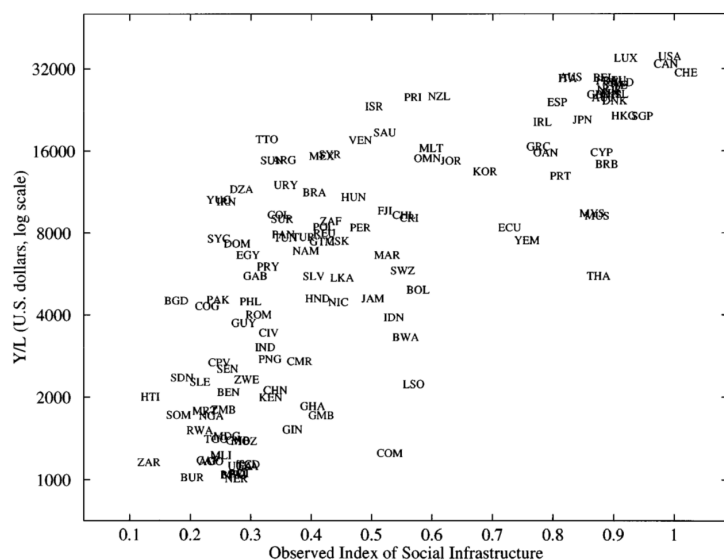


Figure 2: Results from Hall & Jones (1999) "Why do some countries produce so much more output per worker than others?"

FIGURE II
Social Infrastructure and Output per Worker

TABLE III
REDUCED-FORM REGRESSIONS

Regressors	Dependent variables	
	Social infrastructure	Log (output per worker)
Distance from the equator, (0,1) scale	0.708 (.110)	3.668 (.337)
Log of Frankel-Romer predicted trade share	0.058 (.031)	0.185 (.081)
Fraction of population speaking English	0.118 (.076)	0.190 (.298)
Fraction of population speaking a European language	0.130 (.050)	0.995 (.181)
R^2	.41	.60

N = 127. Standard errors are computed using a bootstrap method, as described in the text. A constant term is included but not reported.