MA Macroeconomics
14. Institutions and Efficiency

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A Broader View of TFP

- The leaders-followers model views large differences as reflecting the extent to which countries have adopted the latest technologies.
- However, this is perhaps too mechanistic a view of what generates cross-country differences in efficiency.
- TFP measures how efficiently an economy use of its resources. There are a whole range of other factors that can affect this. For example:
  - **Bureaucratic Inefficiency and Corruption**: Red tape and bribing of officials can be important diversions of resources in poor economies.
  - **Crime**: Time spent on crime does not produce output. Neither do resources devoted to protecting inviduals and firms from crime.
  - **Restrictions on Market Mechanisms**: Protectionism, price controls, and central planning can all lead to resources being allocated in an inefficient manner.
- In addition, while technology adoption certainly has an impact on differences in TFP, this still leaves open the question of what drives the pace of technology adoption in poorer countries. Ultimately, the models so far don't answer the question of the *deeper determinants* of economic success.

Douglass North on Institutions

- There is now a large literature that focuses on the idea that differences in *institutions* provides the key to understanding TFP differences across countries.
- Economic activity does not take place in a vacuum. Firms need to take account of the legal and regulatory environment, the tax system, and the services provided by government as well as the political setting that determines these institutions.
- The work of economic historian Douglass North, winner of the 1993 Nobel prize for economics, was particularly influential in stressing the key importance of good institutions for economic growth.
- The historical approach adopted by North and other economic historians has been very valuable in highlighting cases where good institutions have facilitated economic growth and where bad institutions have prevented it.
- I have put a link on the webpage to a short paper by North "Institutional Change: A Framework of Analysis."

North on Institutions

- From the North paper on the website:
- *"A theory of institutional change is essential for further progress in the social sciences in general and economics in particular. Essential because neo-classical theory (and other theories in the social scientist's toolbag) at present cannot satisfactorily account for the very diverse performance of societies and economies both at a moment of time and over time. The explanations derived from neo-classical theory are not satisfactory because, while the models may account for most of the differences in performance between economies on the basis of differential investment in education, savings rates, etc., they do not account for why economies would fail to undertake the appropriate activities if they had a high payoff. Institutions determine the payoffs. While the fundamental neo-classical assumption of scarcity and hence competition has been robust (and is basic to this analysis), the assumption of a frictionless exchange process has led economic theory astray. Institutions are the structure that humans impose on human interaction and therefore define the incentives that (together with the other constraints (budget, technology, etc.) determine the choices that individuals make that shape the performance of societies and economies over time."*

North on Institutions

- *"Institutions consist of formal rules, informal constraints (norms of behavior, conventions, and self imposed codes of conduct) and the enforcement characteristics of both ... If institutions are the rules of the game, organizations are the players. They are groups of individuals engaged in purposive activity. The constraints imposed by the institutional framework (together with the other constraints) define the opportunity set and therefore the kind of organizations that will come into existence ... 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."*

An Example of the Importance of Institutions: Korea

- After World War II, Korea was split into a northern zone that became the Democratic People's Republic of Korea, a Soviet-style socialist republic, while South Korea became a capitalist economy.
- North Korea received external support from the USSR for many years but no longer receives external aid. It remains a centrally planned economy with only one political party. The economy has failed to prosper and there are reliable reports of large amounts of death from famine in the 1990s.
- In contrast, South Korea has been a huge economic success and is home to many globally successful corporations such as Samsung and Hyundai.
- The figure on the next page illustrates the gap between North and South Korea.
- While the two areas began with few substantive differences, sharing a common culture and identity, their different economic institutions mean that they are now completely different.
- Viewed from the sky, you can see development all over South Korea while North Korea is almost fully dark because of a lack of electricity.

The Korean Peninsula at Night

An Econometric Approach

- Recent research tries to detect the link between institutions and economic performance using econometric methods.
- Hall and Jones (1999) estimate a cross-country regression of the form

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

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

- HJ constructed S_i variable as an average of two different variables:
  1. An "index of government antidiversion policies". This is an average of five different variables relating to (i) law and order (ii) bureaucratic quality (iii) corruption (iv) risk of expropriation, and (v) government repudiation of contracts.
  2. An index that focuses on the openness of a country to trade with other countries

Two Econometric Problems

- **Endogeneity**: Do countries get rich because they have good institutions or do countries have good institutions because they are rich? If the latter is true, so that there is a relationship like

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

  then OLS regression of $\frac{Y_i}{L_i}$ on S_i gives a positive estimate of β even if the true value is zero.

- **Measurement Error**. The variables used as measures of institutional quality are only proxies for the true measure of institutional quality that actually affects economic output. This is effectively measurement error and this result in downward bias in coefficients, so OLS coefficient might be less than the true coefficient.

- So the presence of these econometric problems means OLS estimation will produce biased estimates, though whether the bias is upwards or downwards depends on the source of the bias.

A Solution? Instrumental Variables

- The usual solution to these econometric problems is estimation via instrumental variables.
- This means estimating β from

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

  where $\hat{S}_i$ is the fitted value from a regression of S on a set of instruments i.e. exogenous variables that may be correlated with the institutions variable but are not affected by the country's level of output per worker.
- By focusing on variations in institutions related to exogenous factors that are not determined by output per worker, the researcher can try to identify the true causal effect of institutions.
- But where to find good instruments?

History and Geography as a Source of Instruments

- Researchers focused on either *geography* or *history* as their inspiration for truly exogenous sources of variations in institutions.
  - **Geography** is certainly exogenous—it is not influenced by a country's level of prosperity. But certain types of geographical features may be correlated with whether a country has good institutions or not. Hall and Jones used the country's distance from the equator as an instrument.
  - **History**: 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. Hall and Jones used instruments measuring the fraction of people speaking English as a native language and a variable measuring the fraction of people speaking other Western European languages.
- HJ found a positive and significant effect of their "social infrastructure" variable when estimating using IV methods, with the coefficient being higher than the OLS estimate. They concluded that there is a causal effect from institutions to productivity and that the measurement error is a more important source of bias than is endogeneity.

Other Papers

- **Acemoglu, Johnson, and Robinson (2001)** develop a new instrument measuring settler mortality in different European colonies. Argue that countries where mortality for initial settlers was low were places where Europeans were more likely to settle and set up good institutions, with the reverse working when settler mortality was high. Using this instrument, they find a strong effect of "risk of expropriation" on output per capita.
- **Rodrik, Subramanian and Trebbi (2004)** assess the role of institutions (proxied by a variable measuring the strength of the rule of law), openness to trade and geography (as measured by distance from the equator). Use variables such as the AJR settler mortality variable and language-related variables, as instruments. Conclude that institutions, in the form of their rule of law variable, are the key determinant of economic success and do not find a significant role for trade or geography.
- **Gillanders and Whelan (2014)** compare the effect of the Rule of Law variable with a variable that measures the "ease of doing business". Apply IV methods using geographical variables as instruments. Conclude that ease of doing business that is the key determinant of output per capita rather than Rule of Law variable.

Things to Understand from this Topic

- How non-technological factors influence total factor productivity.
- Douglass North on institutions.
- How Korea illustrates the importance of institutions.
- Hall and Jones's approach to assessing the links between institutions and economic success.
- The econometric problems that Hall and Jones confronted and their findings.
- Findings of other papers in this literature.