

Understanding Productivity Differences

Daron Acemoglu

Charles P. Kindleberger Professor
of Economics

Massachusetts Institute of
Technology

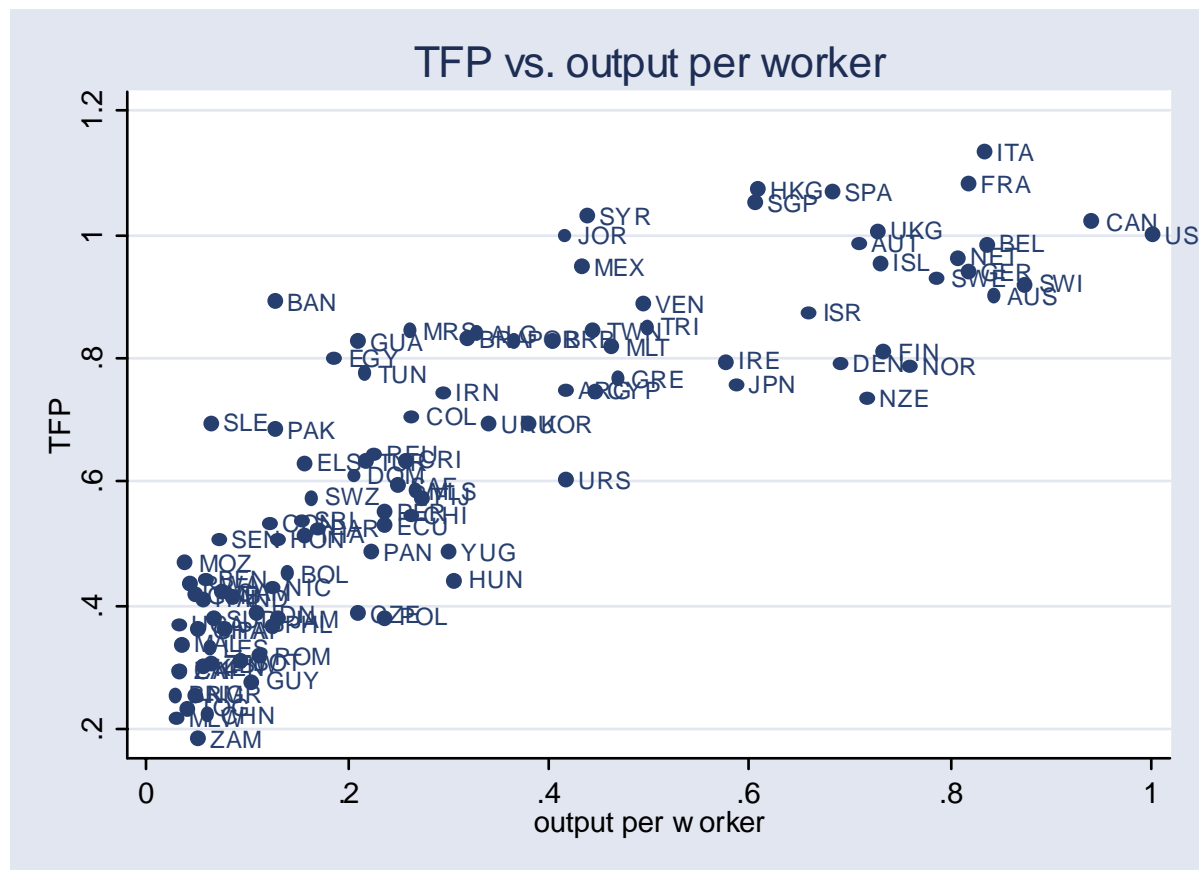
The Wealth of Nations

- Tremendous growth in income per capita in many parts of the world over the past 200 years.
 - E.g.: income per capita in the U.S. rose from \$1200 in 1990 dollars in 1820 almost \$30,000 today.
 - Average income in Western Europe during the same time arose from \$1200 to over \$18,000.
- But changes not uniform; large disparities across countries.
 - Average income per capita in Africa is around \$1300.
 - And much less in some countries; around \$550 in Tanzania, Sierra Leone, Niger, and less in Zaire.
 - Smaller, but still substantial gap between the U.S. and “middle-income” countries like Portugal.

Why?

- “Proximate” answers (channels and mechanics):
 1. Physical capital
 2. Human capital
 3. “Efficiency”---Solow Residual
- Growth accompanied with more physical and human capital, and greater efficiency.
- Poor countries have less physical capital, human capital and lower efficiency.
- Physical capital, the mere quantity of machines, only explains a relatively small part of the variation.
- Bigger factor is “efficiency” (e.g., TFP).

Output and Efficiency



The Turkish Context

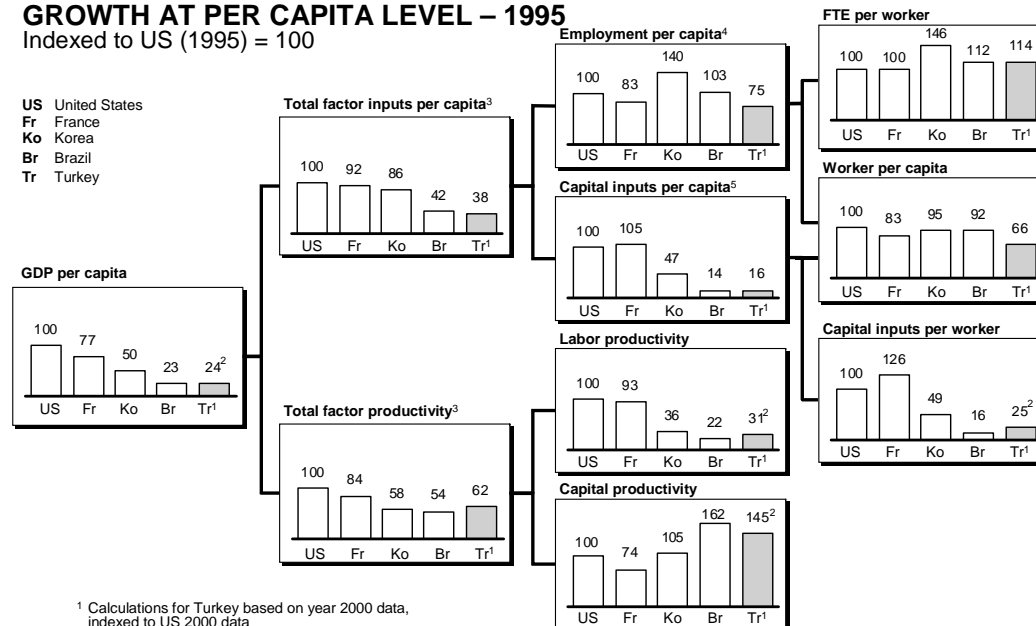
- Turkey middle-income country, with a lot of promise, but on the whole
 - low productivity.
 - low capital per worker.
 - low skills.
 - also low participation rates.

Turkey in Comparative Perspective

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Exhibit 1
CAPITAL AND LABOR INPUTS AND PRODUCTIVITIES AS LEVERS OF GDP
GROWTH AT PER CAPITA LEVEL – 1995
 Indexed to US (1995) = 100

US United States
 Fr France
 Ko Korea
 Br Brazil
 Tr Turkey



¹ Calculations for Turkey based on year 2000 data, indexed to US 2000 data

² Assuming an informal output of 20% GDP, which is not captured in the GDP estimation of State Institute of Statistics

³ Based on Cobb-Douglas production function with capital share of 0.45 (geometric averages of $\alpha_{US} = 0.33$ and $\alpha_{Turkey} = 0.60$)

⁴ FTE per capita, including the effect of different average hours worked/employee

⁵ Excluding residential component in capital stock

Source: State Institute of Statistics, State Planning Organization, WDI, EIU, BEA, IFS

Understanding Efficiency

- Why do some countries produce much more and generate more wealth out of their machines and labor force?
- Two facets of efficiency
 - Different quality and types of machines available to different countries.
 - Different use of available resources, including technology.
- While lacking access to new machines and techniques of production potentially important for some poor countries, for middle-income countries like Turkey, the key is making good use of existing technology.

Improving Efficiency

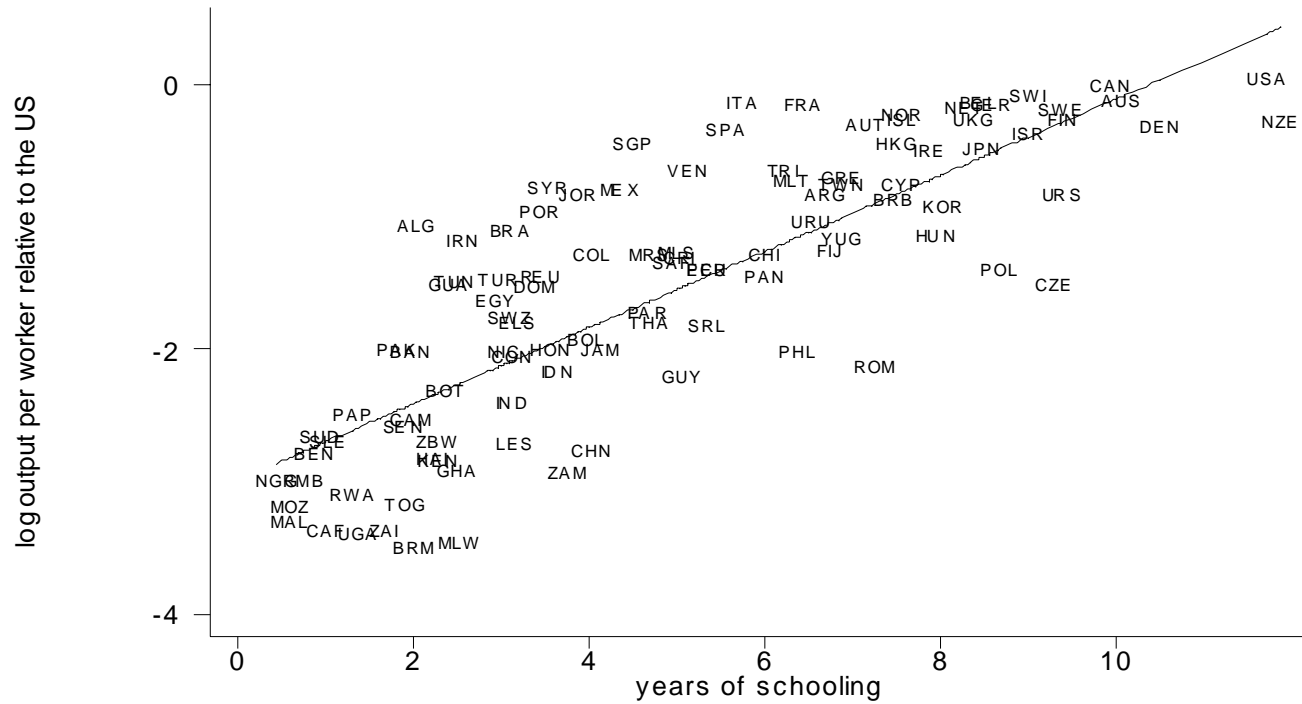
- How can use of resources and technology be improved?
- Three important levers:
 - Human capital.
 - Incentives.
 - Selection.

Human Capital

- Skills and competencies of workers.
 - Analogy to physical capital: in the same way as firms invest in their machinery and build up human capital, workers invest in their skills to build up human capital.
- A major component: education.
 - Though large part of human capital not in schooling.
- Why do workers invest in human capital?
 - Gary Becker: for market reward (similar two firms investing in new machinery...
 - But policy, especially education expenditure and compulsory schooling laws also very important...

Human Capital and Prosperity

Figure 1



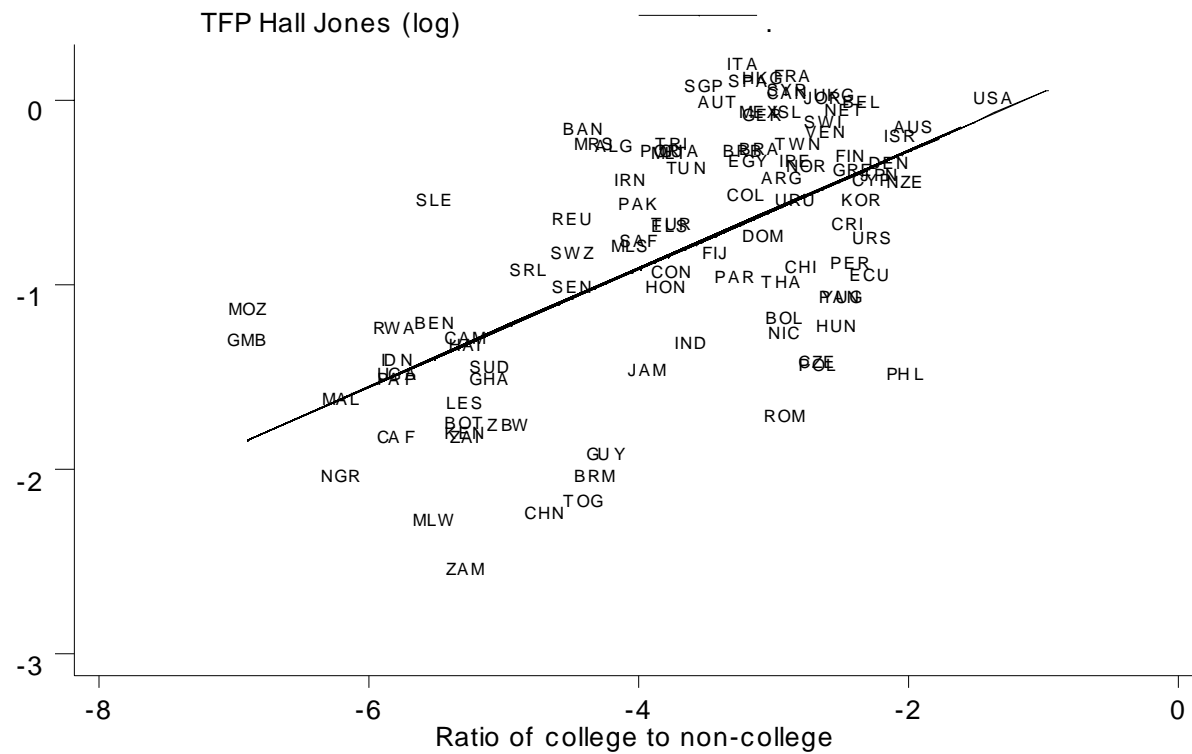
Why Might Human Capital Matter?

- Human capital increases the productivity of workers, and possibly creates benefits for other workers and firms (exchange of ideas, innovations, complementarities).
- These direct effects of human capital can be measured.
 - Approximately 6-10% per one year of schooling for on effects
 - Approximately 0-2% direct “externalities” on society (e.g., Acemoglu and Angrist).
- Substantial. But only sufficient to be part of the major proximate channel for cross-country differences.

Other Channels for Human Capital

- Perhaps, human capital helps the operation and adoption/adaptation of technologies.
- Let's look at the relationship between human capital and total factor productivity (TFP)

Human Capital and TFP



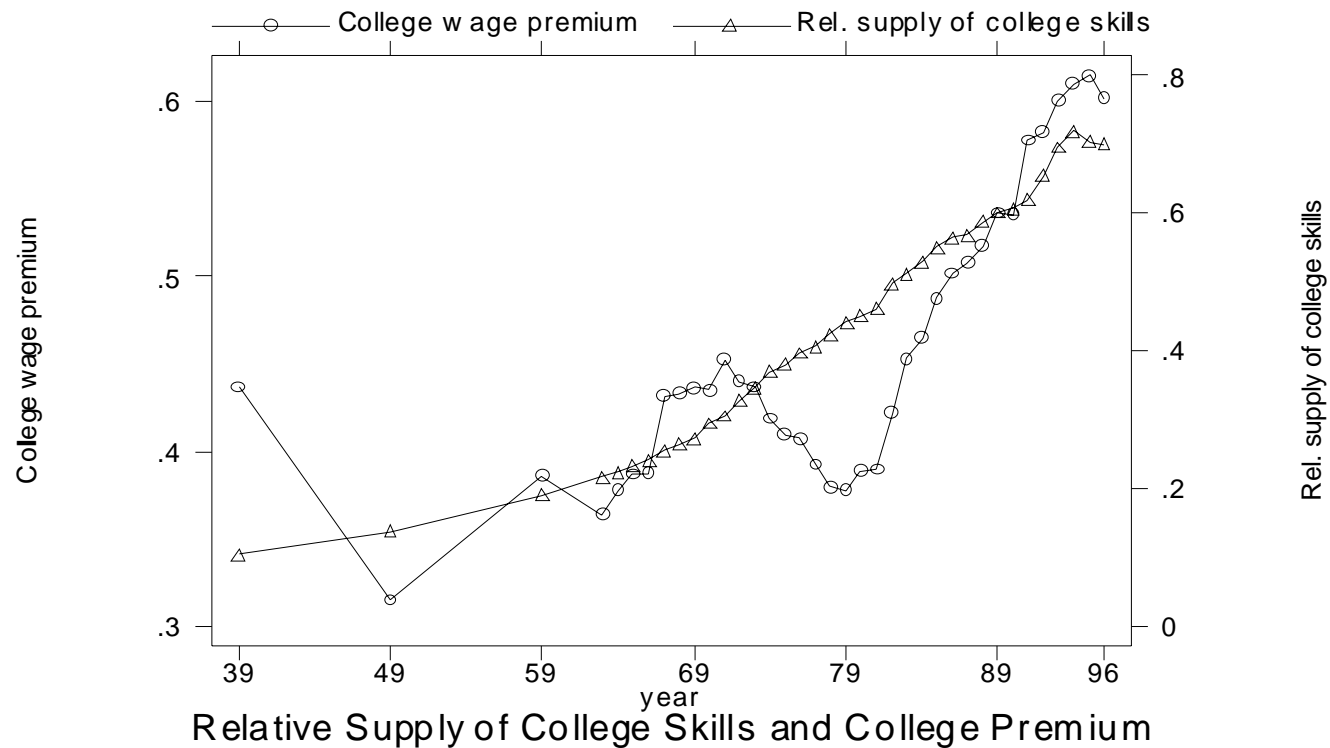
Why Human Capital?

- Human capital important for use of technology.
- Shultz-Nelson-Phelps: coping with new technologies requires skills.
 - E.g. the importance of education during the Green Revolution in India.
- But perhaps more important: technology-skill mismatch (Acemoglu-Zilibotti).

Technology-Skill Mismatch

- Making use of technologies designed for skilled workers requires similarly-skilled workers.
 - Engineers, managers, line workers that can operate new technologies.
 - Otherwise, technology-skill mismatch
- Today most new technologies developed by the most advanced countries, and consequently are designed for skilled workers (“skill biased”).
 - Technology-skill mismatch a major factor.
 - Loss of efficiency if workers lack necessary skills.

Skill Bias of U. S. Technology



Necessity of Human Capital

- Key developments in the world economy,
 - Skill-biased technology
 - Globalization
- Middle-income countries need more and better human capital to make better use of changes in world technology and the opportunities offered by globalization.
- Otherwise, globalization becomes a pitifall rather than an opportunity.
 - Competition from lower-cost countries destroying existing comparative advantages.
- Turkey deficient on human capital spending.
 - In 2002, 2.2% all GDP spent on education, as opposed to around 5% in Kenya, Algeria, Brazil, Thailand, etc. etc..

Fundamental Causes

- Human capital, physical capital and technology are proximate causes of economic growth.
- Why do some countries have better technologies and more human capital?
- Most likely answer:
 1. because they provide better incentives to those who can invest in new technologies and human capabilities (North).
 2. because they select the right type of individuals and firms to become the key investors and players.

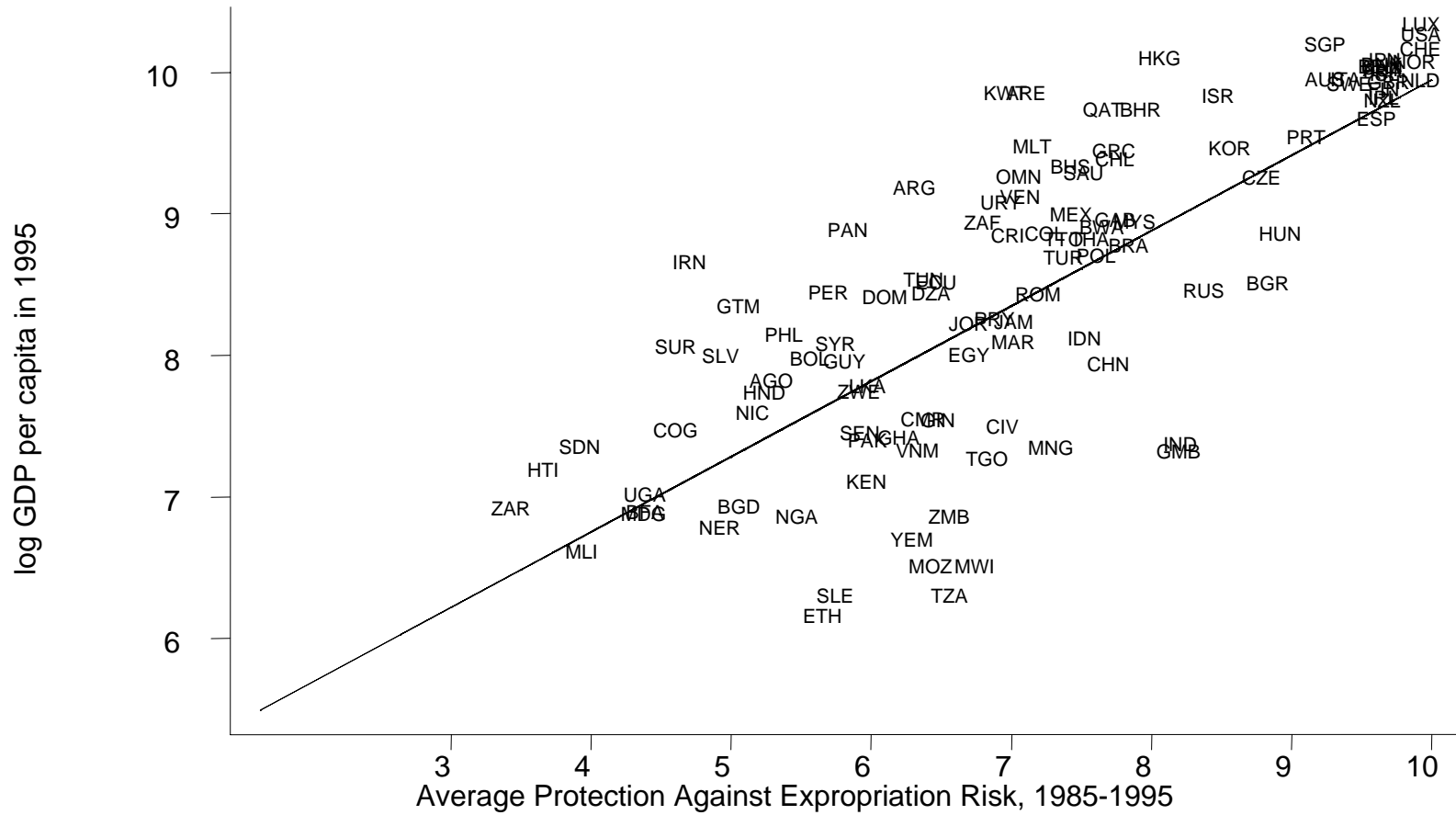
Incentives and Institutions

- Sources of incentives?
- Incentives determined by institutions (rules of the game of society).
- For businesses, most important “security of property rights”.
 - No investment will be forthcoming if businesses expect expropriation, high taxes or inefficient regulation.
 - Institutions have to make a credible commitment to reward investments.
- Two major threats:
 - Theft by others
 - Inefficient intervention or taxation by government.

Institutional Variation

- Big differences in institutions across countries.
 - Democracy vs. dictatorship.
 - Enforcement of property rights.
 - Legal systems and contracting institutions (e.g., how easy it is to enforce contracts---in Turkey, about 10 times as expensive to enforce a simple contracts as in the U.S., but on the bright side, relatively fast).
 - Entry barriers (e.g., cost of opening a new business over 70 times in Turkey compared to the U.S.).

Institutions and GDP



Causal Effect?

- Of course, correlation does not imply causation.
 - Institutions are endogenous, partially caused by income, and determined by other factors simultaneously influencing income.
- Do we know that institutions are important for long-run economic development?
- Answer is yes, but we have to use different econometric techniques, in particular, instrumental variables.
 - One strategy: exploit sources of variation in institutions that are not directly related to income, e.g., features of history.
 - Example: exploiting the “natural experiment” of colonization (Acemoglu, Johnson and Robinson).
 - These strategies typically show very important effects of institutional features on long-run growth, investment and efficiency.

Providing Incentives to Investors

- Private sector impetus is only possible if potential investors have the right incentives.
- Government policy have to take these into account.
- Potential pitfalls for well-meaning policies: ignoring the importance of incentives in devising redistributive programs or regulation.
 - Even more so today because capital is footloose, and can easily move internationally.
- Even more important, pure rent seeking policies.
 - Corruption by political and economic elites.
- On these scores, Turkey potentially deficient.
 - According to heritage foundation, Turkey 106th in the world in terms of economic freedoms (underneath Mali, Azerbaijan and Algeria!)

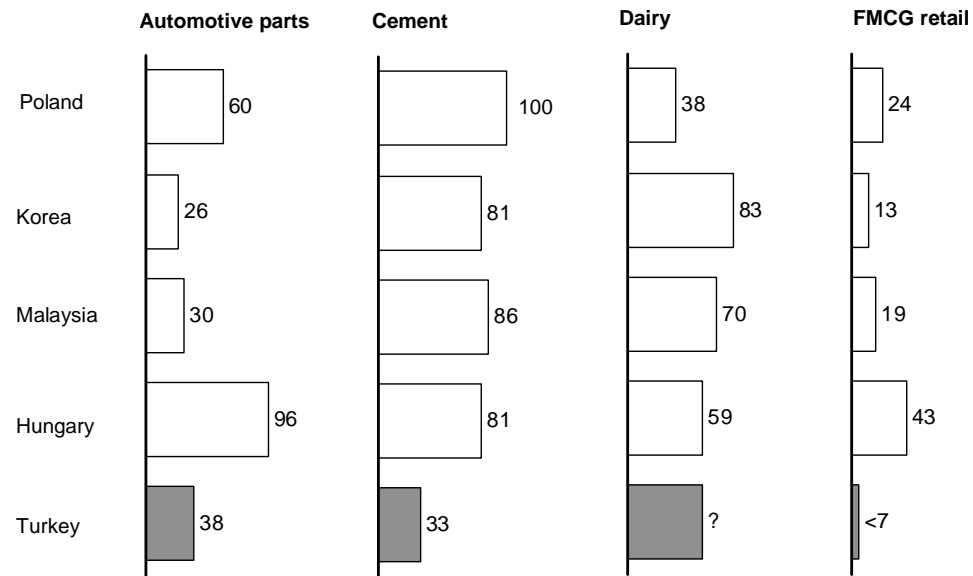
Incentives and FDI

- In a globalized world, foreign direct investment is an increasingly an important lever for transfer of technology to middle-income countries.
- But incentives are even more important for FDI than for domestic investment.
 - Foreign companies have many options and have to incur costs to undertake investments in new countries.
- Because of the general economic environment, military and political risk and regulations, Turkey has been very slow in attracting FDI.

Low FDI Rates (From McKinsey)

Exhibit 27
SHARE OF FDI IN SECTORS STUDIED (1/2)
Percent of sector revenues, market share

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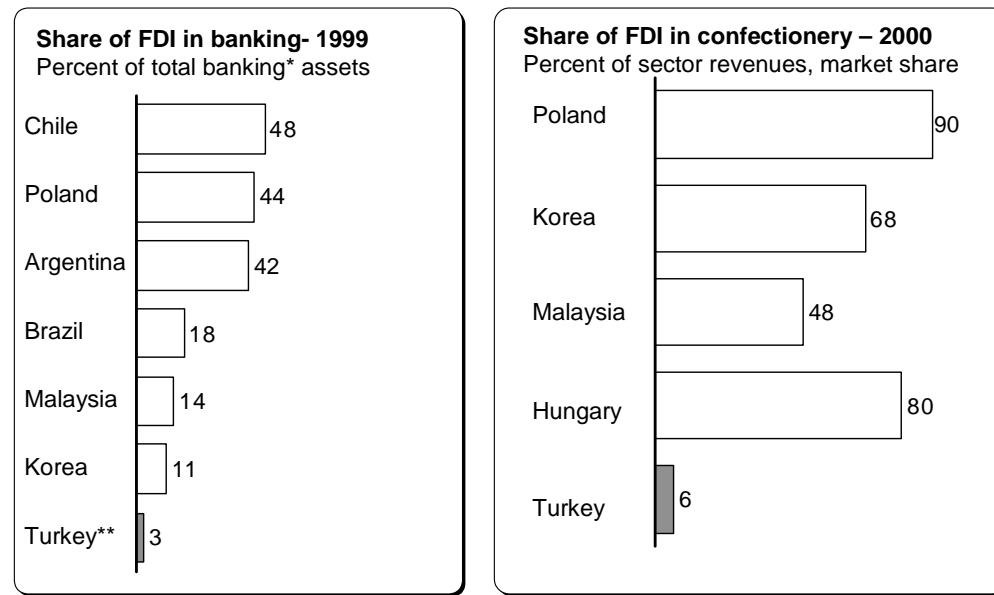


Source: Sector case studies

Low FDI Rates (continued)

Exhibit 28
SHARE OF FDI IN SECTORS STUDIED (2/2)

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* Assumed to be indicative of retail banking

** 2000 data

Source: IMF

Limits to Pro-Business Policies

- But incentives alone are not sufficient.
- We also need “selection”.
- The right firms and people to undertake the investments.
- In other words : level playing field.

Selection and The Incumbents

- Existing firms have to be given the right incentives to undertake investments, adopt new technologies, expand their operations, etc..
- But almost always will also demand protection against competitors, especially more efficient competitors.
- The process of economic growth requires “creative destruction”, in other words the selection of new and more efficient firms and individuals to replace incumbents (Schumpeter).
- Without this, the process of growth will slowdown or even stop.

Implicit Barriers

- In addition to explicit barriers protecting incumbents, implicit barriers are important; e.g., barriers created in the credit market.
 - If only existing large companies can raise loans, this creates a very effective entry barrier (Haber, Rajan and Zingales).
- Lower competition will slow down of the process of creative destruction and prevent the introduction of new technologies.
- Turkish banking sector until recently not playing the role of providing loans to new businesses.
 - Because of bad regulation, highly monopolistic structure and corruption.

The Balance

- The balance therefore has to be found between providing incentives to existing businesses, but also limiting their power to create a non-level playing field.
 - An important area both for academic research and actual policy.
- Need for the right type of regulation and especially opening up of the economy to both foreign and domestic competition.

Natural Synergies

- Level playing field not only for businesses, but also for individuals.
- Tremendous talent often lost for the society because the best education and jobs limited to the elite.
- A natural synergy between more and better quality investment in human capital and creating a level-playing field for individuals.

Conclusions(1)

- Proximate causes of economic growth:
 - human capital, physical capital and technology.
 - human capital's special role in enabling technological progress.
 - potential pitfalls for middle-income countries
- Fundamental causes:
 - incentives
 - selection

Conclusions (2)

- Globalization and new technologies: both opportunities and pitfalls.
- For a country like Turkey, institutional reform to create economic freedoms but also limit the power of incumbents (both in economic and political arena) very important.
- Opportunities presented by European Union:
 - Most important, an engine of institutional reform
 - Paving the way to FDI and import of new technologies.