

Chapter 2

Formal Institutions in the Neoclassical Growth Model

2.1 Theoretical Framework

Fundamental Causes → Proximate Causes → Economic Development

2.1.1 The Fundamental Causes of Economic Growth

Proximate Causes

- **Factor Accumulation**
 - physical capital (poor countries don't save enough)
 - human capital (poor countries don't invest in education and skills)
- **Technological Progress** (Productivity Growth): poor countries don't invest enough in R&D and technology adoption, and don't organize their production efficiently

Fundamental Causes of Growth

What are the fundamental factors capable of explaining differences among countries in endowments of technology and physical and human capital?

Four possible explanations:

1. **luck**
2. **geography** (exogenous differences of environment)
3. **culture** (differences in beliefs, attitudes and preferences)
4. **institutions** (humanly-devised rules shaping incentives)

Luck

- countries with very similar characteristics experience different path of economic growth
 - small differences with long-run consequences
 - selection of multiple equilibria (e.g. poverty traps)
- the **big push** (the industrialization process)
 - A firm's investment decision depends upon expectations about other firms' investment choices
 - Possible "coordination failures"

Geography

- may have different meanings: climate, natural resources, topography, disease environment
- some examples:
 - Diamond, J. (1997). “*Guns, Germs and Steel*”: biogeographic initial conditions 12,000 years ago facilitated the transition to agriculture earlier in Eurasia than elsewhere. Eurasians were the first to engage in intensive food production and acquired some key advantages
 - *Landlocked vs. sea-navigable countries*
 - *Flat vs. Ruggedness*: Rugged terrain has negative effects on economic outcomes. However, in Africa, terrain ruggedness had also beneficial effects as it provided protection against slave trade and thus avoiding the negative long-term effects of the slave trade. Rugged terrain afforded protection to those being raided. It provided caves for hiding and the ability to watch the lowlands and incoming paths.
- possible challenges:
 - big heterogeneity among countries
 - several counter-examples
 - serious doubts on reverse causality

Culture

Culture: beliefs and values that affect individual economic behaviors two main channels:

- two main channels:
 - individual's utility: choice between leisure and work, savings' choices, risk aversion
 - cooperation and trust: it impacts on the possible market failures
- open issues:
 - overlap culture and informal institutions
 - culture is relatively time-invariant

Formal Institutions

Formal Institutions: Institutions that foster accumulation of factors of production (K, H) and innovation (A) help in promoting growth

Problem: how to identify the more relevant institutions (*which ones?*) and the reference model (*which form?*)

Institutions: Which ones?

Economic Institutions:

- contracting institutions: institutions that regulate contracts among agents in the market → they regulate *horizontal relationships*
- property rights institutions: institutions that guarantee property rights such as Physical and intellectual property (patents) → they regulate *vertical relationships*
- fiscal and monetary institutions and policies → ensure macroeconomic stability
- other institutions (e.g. education)

Political Institutions: e.g. democracy

2.1.2 Growth Enhancing Institutions

Theory

Individuals seek to maximize income/wealth and they have two alternative strategies:

1. increase the size of the "pie" (entrepreneurship, innovation)
2. get a "higher share" of the "pie" (redistribution)

Institutions that favor growth should promote (1) that is promote private entrepreneurship to promote innovation

Conditions to Promote Innovation

- $\Sigma E(gains \text{ of innovation}) > \Sigma E(costs \text{ of innovation})$
 1. **reduce costs of innovation** (easy to start and grow a business)
 2. **increase gains from innovation** (protect patents)
 - $\Sigma E(net \text{ gains of innovation}) > \Sigma E(net \text{ gains from redistribution})$
 3. **discourage unproductive activities/reduce redistribution**
 - other necessary but not sufficient conditions are, for example, education policies, ensuring macroeconomic stability
 - incentives (1), (2), (3) should be kept over time
4. **Keep incentives to innovation over time**

(1) Easy to start and grow a business

Reduce the cost of starting and growing a business:

- registration times
- ease in hiring and firing workers
- protection against bankruptcy
- credit access

Easy to Start and Grow a Business

To encourage the formation of innovative entrepreneurial enterprises, governments should lower the costs of "formality" (business and property registration and ease of hiring and firing workers); have a workable bankruptcy system in place; and facilitate the formation and growth of their formal financial sectors, which channel resources to innovative entrepreneurs. The first condition should hardly be a surprise. If entrepreneurship is about starting and growing a commercial enterprise (we ignore for this purpose so-called social entrepreneurs who might have other objectives in mind), then it must be easy and inexpensive to do so—formally, that is. In other words, licensing requirements should be few (unless the business requires some kind of special expertise, such as a medical care facility), the time and the cost required to fill out the necessary applications should be kept to a minimum, and so should time required for approval. These same elements apply to registration of property and collateral (to secure loans); these steps should be easily managed.

- **business registration:** formal processes/registration requirements should not be time-consuming and expensive
 - Cost of Business Start-up
 - Property Registration Cost
 - Difficulty of Hiring
 - Difficulty of Firing
- **bankruptcy protection:** effective bankruptcy protection is critical to promoting entrepreneurship, since without it, many would-be entrepreneurs would be unwilling to take the risks of starting a business, knowing that if they fail they could lose everything
- **access to finance :** growing consensus that economic growth depends to at least some degree on the maturity and soundness of economies' financial systems

(2) Increase rewards for entrepreneurial activity

- Strengthen economic institutions
 - institutions that regulate contracts (market, horizontal relations)
 - institutions that protect property rights (physical and intellectual, vertical relations)
- open the economy
 - trade
 - foreign direct investment
- avoid high taxation

In the vernacular, the choices are to expand the pie or to seek larger slices.

Clearly, economic growth requires activities of the first type—those that expand the pie or total output—and we will refer to this as *productive entrepreneurship*. In turn, we have previously identified two types of productive entrepreneurship: innovative and replicative. For entrepreneurial societies, we are interested in the former, for it is only by commercializing new products and services or by adopting new and better ways of making or delivering existing ones that the economic frontier moves out.

It is not sufficient for entrepreneurial economies to make it easy for entrepreneurs to start their businesses. Such individuals and the firms they found must be rewarded for their success. Several institutions are important are in this regard: the rule of law (effectively enforced), intellectual property protection (but not too much), taxes that are not unduly onerous, and rewards and mechanisms to facilitate imitation in certain environments.

- **the rule of law, property and contract rights:** Innovative entrepreneurship is a risky undertaking, and individuals who bear these risks must be appropriately compensated.
 - entrepreneurs must have rights to the property—money, land, goods, or all three—they gain as a result of successfully pursuing their endeavor
 - entrepreneurs (and all firms) must have confidence that the contracts they enter into with other parties will be honored (and if necessary, enforced by an independent judicial system

- **avoid onerous taxation:** minimize *disincentives* that can discourage such activity such as taxation
 - the optimal level of taxation for any society—whether or not it aims to be entrepreneurial—clearly is not zero.
 - the critical challenge for entrepreneurial societies is to fund public goods at such a level and in a fashion that least punishes entrepreneurial success.
- **proper regulation/de-regulation**
- **reward new ideas:**
 - technological breakthroughs happen only when related ideas or products, already in the marketplace, are put together in new ways → virtually every product that has ever been sold has features that were previously developed but are now combined in new ways to yield something different

So what does government policy have to do with all this?

- one will get more innovation if it is actively encouraged and rewarded → introduction of patent protection
- even with the temporary monopoly profits awarded to innovators under patents, the lion's share of the gains from innovation still spill over to the rest of society
- having a patent remains a prized possession and thus must continue to act as a powerful force for stimulating innovation
- **government supported R&D:** subsidize basic scientific research - basic scientific understanding provides the building blocks for subsequent applied research that eventually leads to commercial products.
- **commercialize university invention**
- **reward imitation:** Not all ideas from innovative businesses need to be new but instead just *new to particular environments and locations*.
Countries in the early stages of economic development cannot realistically be expected to grow by originating ideas for new products when it is easier and less expensive for them to adapt technologies and products already in use in other settings for use at home

(3) Discourage unproductive activity

- reduce redistribution/reduce progressivity
 - positive effect of inequality (with some limits)
 - economic efficiencies generated by redistribution

The evil twin of entrepreneurship is unproductive activity that detracts and even subtracts from an economy's income and wealth. By unproductive activity, we broadly mean to include both unlawful and lawful efforts to redistribute the economic pie rather than to contribute to the growth of the pie.

(4) Keep incentives to innovation over time

- Antitrust law (authorities) - it conducts its activity slowly and sometimes inefficiently
- Open markets (trade and capitals)

It is not enough to induce innovative entrepreneurs to form businesses if we want entrepreneurial economies to keep growing. Once entrepreneurs succeed, it is vital that they or, more likely, the managers who succeed them be induced to keep innovating, rather than turning to rent-seeking to protect themselves from competitors, especially disruptive technologies (such as electricity or the Internet) that can quickly and radically change the competitive landscape.

How then can the winners of the competitive race be motivated to keep innovating, whether incrementally or radically? How can society prevent the winners in one round of economic competition from thwarting the next generation of entrepreneurs who threaten to topple the previous winners?

- antitrust:
 - competitors should not be allowed to fix prices
 - mergers between firms already dominant in concentrated markets ought not to be allowed
 - firms with “market power” should not be allowed to abuse that power through exclusive arrangements and other behavior having no legitimate business purpose that cements their market position
- Welcoming trade and investment:
 - Competition from imports can prod domestic firms that may be getting lazy to actively participate in innovation.
 - both economies at the technological frontier and the developing world can benefit significantly from open borders—to goods, ideas, and people

Role of the State in this Framework

*“Although different writers (...) have different points of emphasis, (...) the state has to be **strong enough** to provide a **solid minimum framework** of law and order, enforcement of contracts, and other basic institutions underpinning the market, while at the same time the state executive has to be constrained not to interfere with security of property rights. (...) – **not too strong to be confiscatory**”*

Other Factors—or the “What Abouts?”

Four other factors have been or might be asserted as essential for economic success at the frontier: (1) culture, (2) education, (3) macroeconomic stability, and (4) democracy.

Each of these factors can enhance growth, but they are not in the list of basic factors for either or both of two reasons

1. none of these supplemental “what abouts” are essential for implementing each of the four basic ingredient: some of them—such as culture and democracy—may be outcomes of the four basic institutions rather than their antecedents
2. none of the four “what abouts” are unique to either big-firm or entrepreneurial capitalism, or, ideally, the right blend of the two

World Bank Ease of Doing Business

What is measured in *Doing Business*?



"One aspect of Doing Business has remained unchanged: its focus on promoting regulatory reform that strengthens the ability of the private sector to create jobs, lift people out of poverty and create more opportunities for the economy to prosper. The notion that the private sector has substantial economic, social and development impact is now universally recognized"

Policy reforms catalyze private investment. Promoting a well-functioning private sector is a major undertaking for any government. It requires long-term policies of removing administrative barriers and strengthening laws that promote entrepreneurship"

WB Doing Business (DB) 2018

"Research demonstrates a causal relationship between economic freedom and gross domestic product (GDP) growth, where freedom regarding wages and prices, property rights, and licensing requirements leads to economic development"

DB 2020

In September 2021, World Bank Group management decided to discontinue the Doing Business report. However, the Doing Business website continues to be publicly available as an archive of knowledge and data.

"Mainstream" theory in short

Principal ingredients

- Ease of doing and growing business → **Internal liberalization**
- Remuneration of entrepreneurial activity → **Patents' protection**
- Disincentives to unproductive activities → **Reduce redistribution**
- Keep incentives over time → **International liberalization** (goods and capitals)

2.1.3 "Unleashing Entrepreneurship in Less Developed Economies" - Baumol et al. (2007)

GENERAL ARGUMENT:

1. regardless of the state of their economic development, all less developed countries can benefit by promoting both replicative and innovative entrepreneurship
 - *replicative entrepreneurship*: technology should be borrowed from abroad, typically by accepting foreign direct investment
 - *innovative entrepreneurship*: bottom-of-the-pyramid product and service innovations adapted to the unique circumstances of individual developing economies and for countries at later stages of development, through adaptation of cutting-edge products and services currently designed for rich country markets, firms, and consumers
2. it is unrealistic to expect the more successful state-guided developing economies suddenly to embrace all the principles of entrepreneurial capitalism outlined in the last chapter → opportunities for these economies to introduce these policies *at the margin or incrementally*
3. growth is most difficult to accomplish in oligarchic economies where incomes are highly unevenly distributed
 - for countries to grow, it is essential for their leaders to want that result and to be prepared to work for it
 - by definition, oligarchs do not give the highest priority to economic growth, there are realistically only two broad options available for such countries: (1) revolution from within or (2) outside pressure from other countries to induce constructive change
4. though there are good theoretical reasons why foreign aid may be able to raise growth rates the evidence for this proposition is decidedly mixed. → Eventually, developing countries, even the poorest ones, must find ways to grow on their own

What is a Developing Country?

The notion of developing country has been around since the end of World War II after which many nations formed a specialized entity—the World Bank—with the specific mission of furthering the economic development of most of the not-developed countries

The typical metric used to evaluate where countries stand on the ladder of economic development is per capita income.

- To take account of different currencies, the income measures are converted to their dollar equivalents, using
 - market exchange rates
 - market rates adjusted for differences in purchasing power within countries (PPP: Purchasing Power Parity)
- While we recognize that per capita income levels are significant measures of economic progress, they are not the only ones → they do not account for factors that affect life but are not traded in markets—such as the quality of the environment, the stability of families, personal safety, or health

The Many Paths to Economic Development (or Lack Thereof)

Four forms of capitalism that have been adopted in the postwar period (by countries that did not follow or were not forced to follow the central planning model of the Soviet Union and China)

- Countries that chose some form of state guidance, principally the Asian “Tigers” and India;
- Countries that have exhibited some form of oligarchic capitalism, or much of Africa, Latin America, and the Middle East;
- The rare countries, like Taiwan, that encouraged entrepreneurial capitalism and largely (like the United States) eschewed state guidance, except to promote broadly the development of industries or sectors that offered opportunities for exports;
- The Western European and Japanese economies, which initially embraced entrepreneurship and welcomed foreign investment after the war but eventually tolerated and even nurtured the growth and later dominance of large firms.

The Misplaced Lure of State Guidance

Looking across all these models, it is tempting to conclude that developing countries that want growth should embrace some form of state guidance if they too want to catch up rapidly to the rich-country frontier.

- evidence does not support the view that detailed economic guidance by the state¹ adds to growth, above and beyond what can and has been generated by high domestic savings and sound government policies that support growth without attempting to “pick winners”

In this sense, there is little that is ‘miraculous’ about the [East Asian] countries’ superior record of growth.” But as the report acknowledged, these fundamental policies “do not tell the entire story.” The report emphasized the importance of institutions—strong property and contract rights—but was skeptical that targeted state interventions appreciably increased growth, despite widespread belief to the contrary. It concluded: “Some important government interventions in East Asia, such as Korea’s promotion of chemicals and heavy industries, have had little apparent impact on industrial structure. In other instances, such as Singapore’s effort to squeeze out labor-intensive industries by boosting wages, policies have clearly backfired. . . .

On the basis of an exhaustive review of the experience of developing economies during the last thirty years, the WB concludes that attempts to guide resource allocation with non-market mechanisms have generally failed to improve economic performance

- the growth experience of India provides strong evidence that state guidance can be more of a hindrance than a stimulant to growth
- Even mainland China’s rise to economic power during the past two decades does not support the view that detailed state guidance is necessary for economic success

(*) Moving Away from State Guidance

Elements of Reform

The main required elements of reform are the preconditions for entrepreneurial capitalism outlined

¹directing aid or providing appropriate approvals to some sectors and firms and not others

before: (1) minimum of impediments or regulatory requirements to starting and expanding new businesses; (2) incentives for productive enterprise; (3) disincentives for unproductive entrepreneurship; and (4) measures to ensure that successful entrepreneurs and the larger firms they establish continue to innovate.

List of more concrete measures that seem particularly relevant to economies that can be characterized as primarily guided by the state

- lowering barriers to business formation
 - formalizing legal systems
 - improving access to capital
 - education
- *•—————

LOWERING BARRIERS TO BUSINESS FORMATION

- eliminate the involvement of courts in business registration
- do not require publication of the registration in a newspaper
- introduce standardized and streamlined registration forms, with a fixed (and modest) fee
- impose a nominal or zero-capital requirement
- as telecommunications improve, allow online registration.

Furthermore, as barriers to conducting business come down, informal firms no longer need to hide from the authorities and thus are able to grow to more efficient sizes, hiring more workers

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FORMALIZING LEGAL SYSTEMS

It is more difficult to achieve than commonly supposed. A well-functioning legal system requires:

- effective judicial system (e.g. independent judges who are well trained and cannot be bribed)
- effective law enforcement system → law is nothing unless individuals and firms expect that the rulings of courts always be enforced.

The key, in our view, is that whatever set of institutions is in place must be stable and viewed widely by residents and foreign investors as trustworthy, so that all parties can reasonably expect to know what the rules are when they conduct business or go about their private lives.

—————•*•—————

IMPROVING ACCESS TO CAPITAL

The most visible indicator that an economy is characterized by state-guided capitalism is that much of its financial system, and specifically its banks, is government owned.

In principle, additional privatization should move countries further in the entrepreneurial direction → Privately owned banks are far more likely than government-owned institutions to base a decision to lend solely on the basis of commercial considerations, and for this reason they are more likely to back entrepreneurial ventures

—————•*•—————

EDUCATION

Although an educated workforce is not a magic answer to the growth puzzle, it is a necessary (though not sufficient) condition for rapid growth

In the standard neoclassical growth model, education increases economic output by enhancing “human capital,” but only if the right institutional conditions are present to ensure that firms have incentives to make use of the additional skills

Countries have fundamentally two ways in which they can educate their citizens, either (1) “widely” or (2) “deeply”.

Because the resources of developing countries, especially the poorest ones, necessarily are limited, they are likely to be able to pursue only one of these strategies. Only later, as their level of prosperity rises, can they afford to pursue both.

- **wide/universal approach:** provide roughly the same basic education to a country’s entire population
 - Asian and Eastern Europe countries have pursued the universal model, seemingly quite successfully.
- **deep approach:** educate the most talented individuals at home, in domestic universities, while giving less attention to universal education
 - In contrast, India provides the best example of a country that has pursued the “deep” or “elite” educational approach
- The Chinese approach to education stands somewhat between these two extremes: The country does an outstanding job educating its most innately talented students, especially in technical subjects, and it is investing heavily in university-based education

For poor countries, the most efficient course, at least initially, is to send a core group of their most talented potential faculty members for training abroad (with monetary incentives to ensure their return) and then have the initial cohorts train new cohorts.

Both the universal and elite educational models have been quite successful in stimulating aggregate economic growth but with very different distributional outcomes: **if educational opportunities are to be afforded widely, then earnings should be distributed more evenly** than in societies where educational resources are concentrated on a limited portion of the population

Whether the universal or elite approach to education produces greater growth, however, is not yet resolved



(*) Pace of Change

Shock Therapy: Shock therapy involves sudden and dramatic economic policies aimed at rapidly transforming a country’s economy, often from a centrally planned or state-controlled system to a free-market mode

The main argument against shock therapy is that it may not be politically viable, either at the outset or over the sustained period required for it to work.

What is the alternative? Some form of incremental change, or *entrepreneurial capitalism at the margin*. The notion is to *encourage entrepreneurship while not necessarily dismantling the part of the economy that is dependent on state guidance*.

Transition Away from Oligarchy

We cannot expect oligarchies to change direction → oligarchs normally are happy with the way things are, so they have little interest in stimulating growth, which can threaten to upset their comfortable position

The pressure for significant and revolutionary change, then, must come from either within or without the country, through some form of external pressure

Aid, Savings, Investment, and Economic Growth

One of the keys to growth is a high level of savings, which makes possible high investment—both in physical and human capital. *But what if the people are too poor to save on their own, needing what meager incomes they have simply to survive? and does foreign assistance really help the economies of recipient countries?*

Reasons why aid may not succeed in enhancing growth:

- foreign aid provided by rich country governments or multilateral development institutions almost uniformly is or must be distributed through governments of poor countries.
The leaders of the recipient governments, in turn, may misuse or appropriate the aid or allow the aid to reduce growth-relevant spending they might otherwise have undertaken on their own.
- even if aid does somehow manage to jump-start the economic engines of poor countries, aid cannot sustain economic growth.
 - “*just spending more money is not going to build the long-term functional economies that will create the employment and wealth creation to get Africa and other poor countries out of their poverty trap.*”
 - Sustained growth will occur only if the institutional environment is modified so that it becomes conducive to growth.
- ultimately more thought must be given to processes by which aid can be delivered directly to the intended beneficiaries—the sick, children in schools, and so forth—immunizing it from the influence or direction of local governments.

2.1.4 The Washington Consensus

“Mainstream” Theory & ”The Washington Consensus”

A list of 10 recommendations that “*everyone in Washington would agree were needed more or less everywhere in Latin America*”

- Washington: Congress, administration, technocracy; International financial institutions; US government economic agencies; Federal Reserve Board
- Everywhere in Latin America: (immediately extended to other countries)

“All through the Cold War the world had remained frozen in the 1950s’ classification of First, Second and Third Worlds, each of which was assumed to have its own distinct set of economic laws. 1989 marked the end (...) of the intellectual apartheid that had so long assumed that citizens of the Third World behaved quite differently to those of the First World”, Williamson (2004), p. 2

Washington Consensus: 10 recommendations

1. Fiscal Discipline
2. Reordering Public Expenditure Priorities
 - Switching expenditure in a pro-growth and pro-poor way, from things like non-merit subsidies to basic health and education and infrastructure
3. Tax Reform
 - broad tax base with moderate marginal tax rates
4. Liberalizing Interest Rates.
 - "In retrospect I wish I had formulated this in a broader way as financial liberalization", Williamson (2004)
5. A Competitive Exchange Rate
 - not much of a consensus: fixed exchange rate
6. Trade Liberalization
7. Liberalization of Inward Foreign Direct Investment
 - "Not necessarily comprehensive capital account liberalization", Williamson (2004)
8. Privatization
9. Deregulation
 - Easing barriers to entry and exit
10. Property Rights

In Brief:

- *liberalize* (international trade and the labor market)
- *privatize* public companies
- *stabilize* balanced budget

→ neoliberal economic policy

Large influence around the world (DCs as well) + International institutions (IMF, WB, ..., EU)

Krugman, 1995, "*Dutch tulips and emerging markets*" - describes the Washington Consensus as an intellectual bubble

Speculative bubble: "common beliefs of policymakers and investors proved mutually reinforcing"

"A political economy cycle, in which government were persuaded to adopt Washington Consensus policies because markets so spectacularly rewarded them, and in which markets were willing to supply so much capital because they thought they saw an unstoppable move toward policy reforms"

Disappointing effects (largely recognized) - 4 main explanations:

- benevolent explanations
- more radical criticism (linked to the criticism of the neoclassical growth model)

Benevolent Explanations

- incomplete list → augmented Washington consensus
- countries have not correctly applied it

Problems with these explanations: difficult to be falsified

Inadequacy of "one-size-fits-all" strategies

- theory of the "second best"

"When an economy has n problems, fixing $n-k$ of them is not guaranteed to improve economic performance, and may actually make us worse off rather than better off" (Rodrik, 2004, p. 6)

"Any graduate student in economics knows that liberalization, privatization, openness to trade, and the other strictures in the produce economic benefits without a long list of unlikely Washington Consensus cannot be unconditionally expected to conditions being satisfied (complete markets, absence of externalities, full information, ...)" (Rodrik, 2004, p. 13)

- it ignores the existence of constraints: administrative capacity, human resources, political equilibria, ...
- the Diagnostic approach
 - Identify the most important "bottlenecks" in an economy and solve them
 - Specific recommendations for each country → start from the present situation

Inadequacy of the Theoretical Foundation

- Strategies that reflect models of developed countries and, probably, their interests

"By and large, the rules of globalization have been determined by the advanced industrial countries, for their interests, or more precisely for the interests of special interests" - Stiglitz (2005), p. 228

"There is no agreed definition of what these 'better' institutions, often called the Global Standard Institutions (GSIs), are. However, they are institutions that are typically found in Anglo-American countries, which are seen as maximizing market freedom and protecting private property rights most strongly. (...) GSIs are institutions that inherently favour the rich over the poor, capital over labour, and finance capital over industrial capital." - Chang (2010), pp. 2-3

- However these strategies often contradict the experiences of growth in DC

What Next?

World Economic Forum (2017):

*"Over the past several years, a worldwide consensus has emerged on the **need for a more socially-inclusive approach to generating economic growth**"*

- *"There is no single ideal policy mix for the pursuit of inclusive growth"*
- *"Larger fiscal transfers are not necessarily incompatible with long-term growth and competitiveness"*
- *"Policies and institutions supporting social inclusion are not solely a luxury of high-income countries"*

2.2 Evidence

2.2.1 Measures

Measures of Institutions

Main Methodologies:

- *rules-based indicators*: measure formal rules (*de jure*)
- *outcome-based indicators*: measure (through surveys) practical consequences of rules (*de facto*)
- other commonly used indicators are measurable quantities (e.g. public expenditures in specific items)

Aggregate indicators (vs specific items)

- PROs:
 - simplification
 - compensation of uncorrelated measurement errors
- CONs:
 - loss of specificity
 - parametric assumptions on substitutability/complementarity between institutions
 - (over)simplification

Rules-Based Indicators

- quantification of the formal legislation
 - far from being an easy exercise
 - narrow definition of the case in point, to ensure comparability
- possible wedge between formal and substantive legislation
 - enforcement
 - distinction between form and function
 - difference between "declarative and procedural knowledge structures" (Patterson, 2015)
 - Available resources (broadly speaking)
- indicators can be manipulated

Outcome-Based Indicators

- permit to evaluate the perception of institutions from the point of view of relevant stakeholders (voters, firms, investors,...)
- however it is difficult to link specific policies or institutions
- measurement problems:
 - level of measurement, international comparisons
 - precisely quantifiable questions are preferred

Which source do outcome based indicators come from?

- experts:
 - less costly
 - it eases comparison across countries
 - Possible heterogeneity across experts' evaluations...
 - excessive homogeneity across experts' evaluations (correlated errors)
 - Possible biases (pro business community)
- broad samples (individuals, firms,...)
 - Final beneficiaries of the institution under study
 - Greater acceptance by political national actors
 - usual problems with large surveys:
 - * Sample selection and biases due to missing answers
 - * Biases due to cultural traits ("area fixed effect")

2.2.2 "The Regulation of Entry" Djankov et al. 2002

Regulation of entry is one of the components of the "ease of doing business"

It is an example of a rules-based indicator → it is based on official documents and development agencies reports + experts

Regulation of entry measures the **cost of opening a new firm** by taking into account the **number of procedures**, the **required time** and the **monetary costs**

Why Entry Regulation?

Washington Consensus, Point 1: Less regulation → more growth

Two explanations of why barriers to entry exist:

1. **Public interest theory of regulation** (Pigou, 1938) (PI): Regulation (screening, standards, ...) to protect consumers from possible market failures
 - Externalities (pollution), quality of products, reliability, asymmetric information, ...
 - Inefficiencies → regulation (regulations are a way of protecting consumers from possible market failures)
2. **Public choice theory of entry regulation** (Tullock, 1967) (PC): Regulation introduced to favor private interests
 - Firms (reduce competition)
 - Politicians and bureaucrats (votes and/or bribes)
 - Regulation → Inefficiencies (*regulations generate inefficiencies*)

Who is right about Entry Regulation?

If public interest theory of regulation holds, regulation at entry should

- be correlated positively with products' quality, consumers' health, environment protection, competition (social outcomes)
- be correlated negatively with corruption and shadow economy

- be higher in those countries in which government's interests are more in line with those of consumers (political conditions)

If the public interest theory is correct, we should observe (1) positive correlation with "good" social outcome and (2) negative correlation with "bad" social outcome.

Regulation of Entry and Social Outcomes

- Dependent variable: 7 different measures of *public goods*
- Explanatory variables
 - $\log(\# \text{ of procedures})$ - one of the three measures of entry regulation
 - $\log(\text{GDP per capita})$
- OLS model:

Dependent variable	Number of procedures	Ln GDP/POP ₁₉₉₉	Constant	R ² N
Quality standards (ISO Certifications)	-0.2781 ^a (0.0496) -0.1595 ^a (0.0443)	0.0771 ^a (0.0131)	0.7649 ^a (0.1268) -0.1140 (0.1484)	0.3311 85 0.5384 85
Water pollution	0.0127 ^b (0.0084) -0.0037 (0.0076)	0.1557 ^a (0.0174) -0.0131 ^a (0.0027)	0.2984 ^a (0.0314)	0.0247 76 0.2310 76
Deaths from accidental poisoning	0.6588 ^a (0.2057) 0.0637 (0.1958)	1.6357 ^a (0.4381) -0.4525 ^a (0.0933)	6.8347 ^a (1.0929)	0.1179 57 0.4109 57
Deaths from intestinal infection	2.3049 ^a (0.3081) 1.0501 ^a (0.2971)	-2.2697 ^a (0.6778) -0.8717 ^a (0.1012)	7.8494 ^a (1.3048)	0.3451 61 0.6259 61
Size of the unofficial economy ^d	14.7553 ^a (2.5698) 6.4849 ^b (2.5385)	-3.7982 (5.2139) -6.1908 ^a (1.0834)	67.1030 ^a (13.7059)	0.2482 73 0.5187 73
Employment in the unofficial economy	19.4438 ^a (2.5756) 13.8512 ^a -3.6056	-4.1103 (5.9160) -4.4585 ^a (1.3918)	41.5133 ^b (17.6836)	0.3132 46 0.4477 46
Product market competition	-0.4012 ^a (0.1213) -0.1418 (0.1202)	5.7571 ^a (0.2511) 3.3579 ^a (0.7749)	0.1405 54 0.3087 54	

Figure 2.1: regulations seem to be associated with worse social outcomes

Regulation of Entry and Corruption

Panel A: Results for the whole sample						
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)
Number of procedures	-3.1811 ^a (0.2986)	-1.8654 ^a (0.2131)				
Time			-1.7566 ^a (0.1488)	-0.8854 ^a (0.1377)		
Cost					-1.2129 ^a (0.1206)	-0.4978 ^a (0.1285)
Ln GDP/POP ₁₉₉₉		0.9966 ^a (0.0864)		0.9765 ^a (0.1014)		0.9960 ^a (0.1118)
Constant	11.8741 ^a (0.7380)	1.1345 (0.9299)	11.0694 ^a (0.5932)	0.0677 (1.1176)	2.7520 ^a (0.2414)	-4.0893 ^a (0.7867)
R ²	0.4656	0.8125	0.4387	0.7662	0.4256	0.7306
N	78	78	78	78	78	78

Figure 2.2

- dependent variable: index of corruption/absence of corruption (the higher the index, the lower the corruption)
- explanatory variables
 - log(# of procedures) - one of the three measures of entry regulation
 - log(GDP per capita)
- OLS model:

Political conditions and regulation of entry

EVIDENCE ON REGULATION AND POLITICAL ATTRIBUTES						
Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
Executive de facto independence	-0.1249 ^a (0.0322)					
Constraints on executive power		-0.1048 ^a (0.0352)				
Effectiveness of legislature			-0.3301 ^a (0.0778)			
Competition nominating				-0.2763 ^b (0.0999)		
Autocracy					0.0545 ^b (0.0178)	
Political rights						-0.3470 (0.2185)
French legal origin						0.7245 ^a (0.0916)
Socialist legal origin						0.4904 ^a (0.1071)
German legal origin						0.7276 ^a (0.1363)
Scandinavian legal origin						-0.0085 (0.1733)
Ln GDP/POP ₁₉₉₉	-0.0491 (0.0331)	-0.0634 ^c (0.0352)	-0.0087 (0.0401)	-0.0902 ^b (0.0358)	-0.0867 ^a (0.0321)	-0.0939 ^b (0.0386)
Constant	3.1782 ^a (0.2334)	3.2040 ^a (0.2408)	2.8709 ^a (0.2586)	3.3540 ^a (0.2641)	2.7457 ^a (0.2888)	3.1850 ^a (0.2599)
R ²	0.3178	0.2872	0.3424	0.2475	0.2640	0.2350
N	84	84	73	73	84	84

a. Significant at 1 percent; b. significant at 5 percent; c. significant at 10 percent.

Figure 2.3: more regulation is associated with worse political conditions

- dependent variable: entry regulation measured as $\log(\# \text{ of procedures})$
- explanatory variables:
 - indicators of the political climate
 - $\log(\text{GDP per capita})$
- OLS model

Conclusions

Results seem in contradiction with the implications of the *public interest theory of regulation*

“Entry is regulated because doing so benefits the regulators”

Strong implications for institutional reforms → barriers to entry reduce growth and do not sustain public interest

Brief Discussion

Although Doing Business does not capture corruption and bribery directly, inefficient regulation tends to go hand in hand with rent-seeking. The 20 worst-scoring economies on Transparency International’s Corruption Perceptions Index average 8 procedures to start a business and 15 to obtain a building permit. Conversely, the 20 best-performing economies complete the same formalities with 4 and 11 steps, respectively.

Doing Business 2020

Endogeneity of Institutions

Think of $INST$ as the treatment T , which can vary in intensity: higher $INST$ means better institutions

OLS model

$$Y_i = \alpha + \beta INST_i + \gamma X_i + u_i$$

with the exogeneity condition $\mathbb{E}[u_i | INST_i, X_i] = 0$

If institutions are endogenous, the OLS estimates are inconsistent. Possible sources of endogeneity:

- **reverse causality:** richer countries can afford better institutions → upward bias
- **omitted variables:** characteristics, that are correlated to the institutions' quality and to the development level, not included in the analysis → upward bias
- **measurement errors:**
 - Analysts could evaluate more positively institutions of richer countries → upward bias
 - attenuation bias² → downward bias

2.2.3 ”The Colonial Origins of Comparative Development: An Empirical Investigation” - Acemoglu et al. (2001)

²**Attenuation bias/Regression Dilution:** phenomenon in statistical analysis where the estimated relationship between two variables (association) appears weaker than it truly is. This happens due to random errors or measurement inaccuracies in one of the variables (often the independent variable).

The Colonial Origins of Comparative Development

Effect of Institutions on Economic Development

Many countries with bad institutions are colonies, but it is not always the case: some colonies have good and efficient institutions. Can we find a general theory on why

↳ different types of colonization resulted into different institutions

(1) settler colonies

- Europeans are a significant fraction of the population of the colony i.e. they settled
- *replicas of European institutions* with an emphasis on private property/checks on the government

(2) extraction colonies:

- Europeans' main objective was to transfer the resources of the colony to the colonizers
- *extractive institutions* with authoritarian and absolute states (few constraints on elites)

↳ Because of institutional persistence, those institutions still live on today

Current institutions ↳ current economic development

$$\log y_i = \mu + \alpha R_i + X_i' \gamma + \epsilon_i$$

where

- y_i is income per capita in country i
- R_i is protection against expropriation in country i

We need an instrumental variable.

- (1) *instrument relevance condition*: instrument correlated with institutions
- (2) *instrument exogeneity*: unrelated with the error term

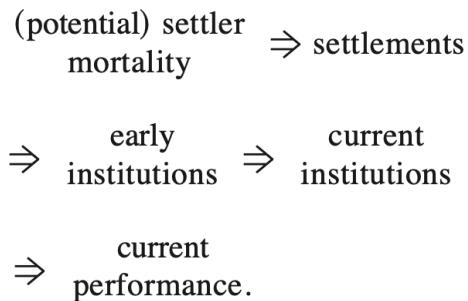
↳ *exclusion restriction*: single channel through which instrument affects outcome (only through institutions)

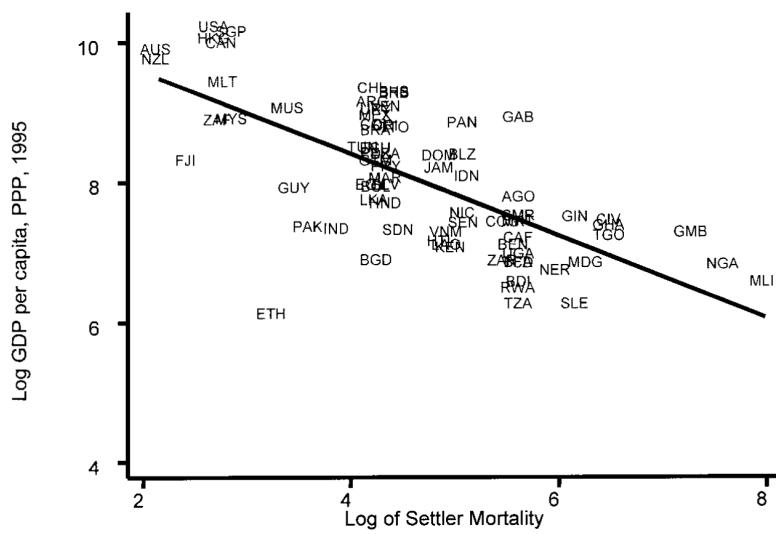
↳ source of variation that affects institutions but has no other effect, independent or working through omitted variables, on income

AJR's instrument: **mortality rate of european living in colonies**

- Colonists did not settle if the country had hostile climate, bad diseases
 - low *mortality* rates ↳ colonizer decided to stay
 - high *mortality* rates ↳ extraction colonies
- The disease environment was known to contemporary Europeans, who were powerless against it, and chose where to settle accordingly.
- The main diseases were malaria and yellow fever, accounting for about 80% of European deaths in the tropics. Gastrointestinal diseases represented another 15%.

The logic can be summarized as following:





The picture plots the log of GDP per-capita today against the logarithm of the settler mortality rates. It shows a strong negative relationship

Colonies where Europeans faced higher mortality rates are today substantially poorer than colonies that were healthy for Europeans.

AJR's theory is that this relationship reflects the effect of settler mortality working through institutions brought by Europeans

Rgress economic performance on current institutions and instrument institutions by settler mortality rates.

Exclusion Restriction: The mortality rates of European settlers more than 100 years ago have no effect on GDP per capita today, other than their effect through institutional development

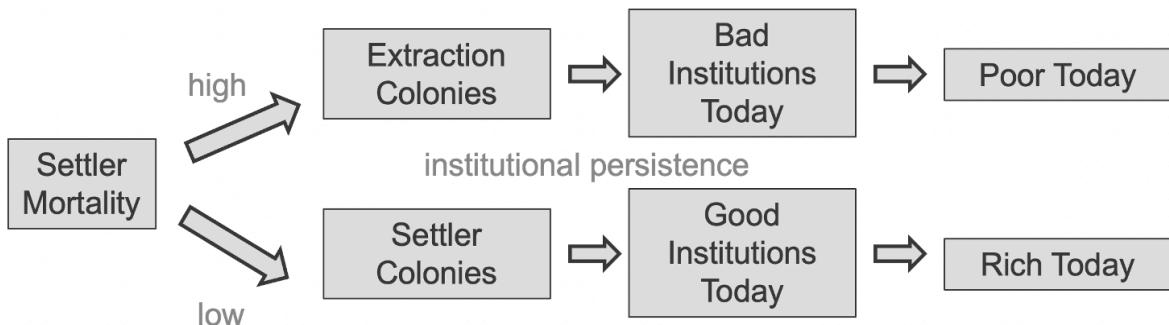
- The major concern of this restriction is that the mortality rates of settlers could be correlated with the general disease environment, which may have a direct effect on economic performance
- if this were true, the instrumental variables estimates may be assigning the effect of diseases on income to institutions

Exclusion restriction cannot be tested formally → you have to build an argument that convinces the reader of the plausibility of the assumption.

AJR's argument: Settler mortality has nothing to do with general disease environment (i.e. with the health of the local population)

- The great majority of European deaths in the colonies were caused by malaria and yellow fever.
- Although these diseases were fatal to Europeans who had no immunity, they had limited effect on indigenous adults who had developed various types of immunities.

→ These diseases are therefore unlikely to be the reason why many countries in Africa/ Asia are very poor today



Mortality and Settlements

There is little doubt that mortality rates were a key determinant of European settlements (a lot of evidence). The eventual expansion of many of the colonies was also related to the living conditions there. In places where the early settlers faced high mortality rates, there would be less incentive for new settlers to come.

Types of Colonization and Settlement

Historical evidence supports both the notion that there was a wide range of different types of colonization and that the presence or absence of European settlers was a key determinant of the form colonialism took.

- In settler colonies, where Europeans settled in large numbers, life was modeled after the home country and colonies had representative institutions which promoted the preferences of settlers
- This is in sharp contrast to the colonial experience in Latin America → the main objective of the Spanish and the Portuguese was to obtain gold and other valuables from America.
- There were few constraint on state power in the non-settler colonies → the colonial powers set up authoritarian and absolutist states with the purpose of solidifying their control and facilitating the extraction of resources

Institutional Persistence

The control structures set up during the colonial era in non-settler colonies persisted as well as the institutions of law and order and private property established in settler colonies.

Young: extractive institutions set up by the colonialists persisted long after the colonial regime ended.

He writes “although we commonly described the independent polities as ‘new states,’ in reality they were successors to the colonial regime, inheriting its structures, its quotidian routines and practices, and its more hidden normative theories of governance” (1994 p. 283).

Main Equation: OLS

$$(1) \quad \log y_i = \mu + \alpha R_i + \mathbf{X}'_i \gamma + \varepsilon_i$$

where y_i is income per capita in country i , R_i is the protection against expropriation measure, \mathbf{X}_i is a vector of other covariates, and ε_i is a random error term. The coefficient of interest throughout the paper is α , the effect of institutions on income per capita.

TABLE 2—OLS REGRESSIONS

	Whole world (1)	Base sample (2)	Whole world (3)	Whole world (4)	Base sample (5)	Base sample (6)	Whole world (7)	Base sample (8)
64 countries ex-colonies								
Dependent variable is log GDP per capita in 1995								
Average protection against expropriation risk, 1985–1995	0.54 (0.04)	0.52 (0.06)	0.47 (0.06)	0.43 (0.05)	0.47 (0.06)	0.41 (0.06)	0.45 (0.04)	0.46 (0.06)
Latitude			0.89 (0.49)	0.37 (0.51)	1.60 (0.70)	0.92 (0.63)		
Asia dummy				-0.62 (0.19)		-0.60 (0.23)		
Africa dummy				-1.00 (0.15)		-0.90 (0.17)		
“Other” continent dummy				-0.25 (0.20)		-0.04 (0.32)		
R^2	0.62	0.54	0.63	0.73	0.56	0.69	0.55	0.49
Number of observations	110	64	110	110	64	64	108	61

- Column 1 shows that in the whole world sample there is a strong correlation between the measure institutions and income per capita
- Column 2 shows that the impact of the institutions variable in the base sample of 64 ex-colonies countries is quite similar to that of the whole world
- In columns 3–6 a latitude dummy was added – in columns 4–6 Asia, Africa and other continents dummies were added

Overall the results in table 2 show a strong correlation between institutions and economic performance. Nevertheless there are a number of reasons for not interpreting this relationship as causal.

First Stage: settler mortality \rightarrow institutions

$$(5) \quad R_i = \zeta + \beta \log M_i + \mathbf{X}'_i \delta + v_i \quad \text{where } M_i \text{ is the settler mortality rate in 1,000 mean strength. The exclusion restriction is that this variable does not appear in (1).}$$

TABLE 4—IV REGRESSIONS OF LOG GDP PER CAPITA

	Base sample (1)	Base sample (2)	Base sample without Neo-Europe (3)	Base sample without Neo-Europe (4)	Base sample without Africa (5)	Base sample without Africa (6)	Base sample with continent dummies (7)	Base sample with continent dummies (8)	Base sample, dependent variable is log output per worker (9)
Panel B: First Stage for Average Protection Against Expropriation Risk in 1985–1995									
Log European settler mortality	-0.61 (0.13)	-0.51 (0.14)	-0.39 (0.13)	-0.39 (0.14)	-1.20 (0.22)	-1.10 (0.24)	-0.43 (0.17)	-0.34 (0.18)	-0.63 (0.13)
Latitude		2.00 (1.34)		-0.11 (1.50)		0.99 (1.43)			2.00 (1.40)
Asia dummy							0.33 (0.49)	0.47 (0.50)	
Africa dummy							-0.27 (0.41)	-0.26 (0.41)	
“Other” continent dummy							1.24 (0.84)	1.1 (0.84)	
R^2	0.27	0.30	0.13	0.13	0.47	0.47	0.30	0.33	0.28

There is a strong negative correlation between settlers mortality and quality of institutions today \rightarrow the instrument is relevant

TABLE 4—IV REGRESSIONS OF LOG GDP PER CAPITA

	Base sample (1)	Base sample (2)	Base sample without Neo-Europe (3)	Base sample without Neo-Europe (4)	Base sample without Africa (5)	Base sample without Africa (6)	Base sample with continent dummies (7)	Base sample with continent dummies (8)	Base sample, dependent variable is log output per worker (9)
Panel A: Two-Stage Least Squares									
Average protection against expropriation risk 1985–1995	0.94 (0.16)	1.00 (0.22)	1.28 (0.36)	1.21 (0.35)	0.58 (0.10)	0.58 (0.12)	0.98 (0.30)	1.10 (0.46)	0.98 (0.17)
Latitude		-0.65 (1.34)		0.94 (1.46)		0.04 (0.84)		-1.20 (1.8)	
Asia dummy							-0.92 (0.40)	-1.10 (0.52)	
Africa dummy							-0.46 (0.36)	-0.44 (0.42)	
“Other” continent dummy							-0.94 (0.85)	-0.99 (1.0)	

An $\alpha = 1$ implies that by increasing by 1 the index of protection against expropriation leads to a 10% increase in GDP per-capita

The validity of the 2-stage-least-squares results depend on the assumption that settler mortality in the past has no direct effect on current economic performance.

By construction, the exclusion restriction cannot be tested, but there are ways to show that it is plausible

- AJR directly control for many of the variables that could plausibly be correlated with both settler mortality and economic outcomes
 - colonial origin
 - climate and geography
 - european population
 - disease environment
- and check whether the addition of these variables affects the estimates

Overall, results change remarkably little with the inclusion of these variables

TABLE 5—IV REGRESSIONS OF LOG GDP PER CAPITA WITH ADDITIONAL CONTROLS

	Base sample (1)	Base sample (2)	British colonies only (3)	British colonies only (4)	Base sample (5)	Base sample (6)	Base sample (7)	Base sample (8)	Base sample (9)
Panel A: Two-Stage Least Squares									
Average protection against expropriation risk, 1985–1995	1.10 (0.22)	1.16 (0.34)	1.07 (0.24)	1.00 (0.22)	1.10 (0.19)	1.20 (0.29)	0.92 (0.15)	1.00 (0.25)	1.10 (0.29)
Latitude			-0.75 (1.70)			-1.10 (1.56)		-0.94 (1.50)	-1.70 (1.6)
British colonial dummy	-0.78 (0.35)	-0.80 (0.39)							
French colonial dummy	-0.12 (0.35)	-0.06 (0.42)							0.02 (0.69)
French legal origin dummy					0.89 (0.32)	0.96 (0.39)			0.51 (0.69)
p-value for religion variables							[0.001]	[0.004]	[0.42]
Panel B: First Stage for Average Protection Against Expropriation Risk in 1985–1995									
Log European settler mortality	-0.53 (0.14)	-0.43 (0.16)	-0.59 (0.19)	-0.51 (0.14)	-0.54 (0.13)	-0.44 (0.14)	-0.58 (0.13)	-0.44 (0.15)	-0.48 (0.18)
Latitude			1.97 (1.40)			2.10 (1.30)		2.50 (1.50)	2.30 (1.60)
British colonial dummy	0.63 (0.37)	0.55 (0.37)							
French colonial dummy	0.05 (0.43)	-0.12 (0.44)							-0.25 (0.89)
French legal origin					-0.67 (0.33)	-0.7 (0.32)			-0.05 (0.91)
R ²	0.31	0.33	0.30	0.30	0.32	0.35	0.32	0.35	0.45
Panel C: Ordinary Least Squares									
Average protection against expropriation risk, 1985–1995	0.53 (0.19)	0.47 (0.07)	0.61 (0.09)	0.47 (0.06)	0.56 (0.06)	0.56 (0.06)	0.53 (0.06)	0.47 (0.06)	0.47 (0.06)
Number of observations	64	64	25	25	64	64	64	64	64

TABLE 6—ROBUSTNESS CHECKS FOR IV REGRESSIONS OF LOG GDP PER CAPITA

	Base sample (1)	Base sample (2)	Base sample (3)	Base sample (4)	Base sample (5)	Base sample (6)	Base sample (7)	Base sample (8)	Base sample (9)
Panel A: Two-Stage Least Squares									
Average protection against expropriation risk, 1985–1995	0.84 (0.19)	0.83 (0.21)	0.96 (0.28)	0.99 (0.30)	1.10 (0.33)	1.30 (0.51)	0.74 (0.13)	0.79 (0.17)	0.71 (0.20)
Latitude		0.07 (1.60)		-0.67 (1.30)		-1.30 (2.30)		-0.89 (1.00)	-2.5 (1.60)
p-value for temperature variables	[0.96]	[0.97]							[0.77]
p-value for humidity variables	[0.54]	[0.54]							[0.62]
Percent of European descent in 1975			-0.08 (0.82)	0.03 (0.84)					0.3 (0.7)
p-value for soil quality					[0.79]	[0.85]			[0.46]
p-value for natural resources					[0.82]	[0.87]			[0.82]
Dummy for being landlocked					0.64	0.79			0.75
Ethnolinguistic fragmentation					(0.63)	(0.83)			(0.47)
							-1.00 (0.32)	-1.10 (0.34)	-1.60 (0.47)
Panel B: First Stage for Average Protection Against Expropriation Risk in 1985–1995									
Log European settler mortality	-0.64 (0.17)	-0.59 (0.17)	-0.41 (0.14)	-0.4 (0.15)	-0.44 (0.16)	-0.34 (0.17)	-0.64 (0.15)	-0.56 (0.15)	-0.59 (0.21)
Latitude		2.70 (2.00)		0.48 (1.50)		2.20 (1.50)		2.30 (1.40)	4.20 (2.60)
R ²	0.39	0.41	0.34	0.34	0.41	0.43	0.27	0.30	0.59
Panel C: Ordinary Least Squares									
Average protection against expropriation risk, 1985–1995	0.41 (0.06)	0.38 (0.06)	0.39 (0.06)	0.38 (0.06)	0.46 (0.07)	0.42 (0.07)	0.46 (0.05)	0.45 (0.06)	0.38 (0.06)

TABLE 7—GEOGRAPHY AND HEALTH VARIABLES

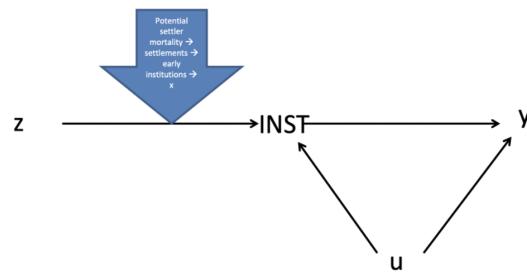
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Instrumenting only for average protection against expropriation risk						Instrumenting for all right-hand-side variables			Yellow fever instrument for average protection against expropriation risk	
Panel A: Two-Stage Least Squares											
Average protection against expropriation risk, 1985–1995	0.69 (0.25)	0.72 (0.30)	0.63 (0.28)	0.68 (0.34)	0.55 (0.24)	0.56 (0.31)	0.69 (0.26)	0.74 (0.24)	0.68 (0.23)	0.91 (0.24)	0.90 (0.32)
Latitude	-0.57 (1.04)		-0.53 (0.97)		-0.1 (0.95)						
Malaria in 1994	-0.57 (0.47)	-0.60 (0.47)				-0.62 (0.68)					
Life expectancy			0.03 (0.02)	0.03 (0.02)				0.02 (0.02)			
Infant mortality					-0.01 (0.005)	-0.01 (0.006)			-0.01 (0.01)		
<i>R</i> ²	0.3	0.31	0.34	0.35	0.32	0.34	0.37	0.36	0.36	0.10	0.32
Panel B: First Stage for Average Protection Against Expropriation Risk in 1985–1995											
Log European settler mortality	-0.42 (0.19)	-0.38 (0.19)	-0.34 (0.17)	-0.30 (0.18)	-0.36 (0.18)	-0.29 (0.19)	-0.41 (0.17)	-0.40 (0.17)	-0.40 (0.17)		
Latitude	1.70 (1.40)		1.10 (1.40)		1.60 (1.40)		-0.81 (1.80)	-0.84 (1.80)	-0.84 (1.80)		
Malaria in 1994	-0.79 (0.54)	-0.65 (0.55)									
Life expectancy			0.05 (0.02)	0.04 (0.02)							
Infant mortality					-0.01 (0.01)	-0.01 (0.01)					
Mean temperature							-0.12 (0.05)	-0.12 (0.05)	-0.12 (0.05)		
Distance from coast							0.57 (0.51)	0.55 (0.52)	0.55 (0.52)		
Yellow fever dummy										-1.10 (0.41)	-0.81 (0.38)
<i>R</i> ²	0.3	0.31	0.34	0.35	0.32	0.34	0.37	0.36	0.36	0.10	0.32
Panel C: Ordinary Least Squares											
Average protection against expropriation risk, 1985–1995	0.35 (0.06)	0.35 (0.06)	0.28 (0.05)	0.28 (0.05)	0.29 (0.05)	0.28 (0.05)	0.35 (0.06)	0.29 (0.05)	0.29 (0.05)	0.48 (0.06)	0.39 (0.06)
Number of observations	62	62	60	60	60	60	60	59	59	64	64

Acemoglu et al. (2001)

- $Y_i = \alpha + \beta INST_i + \gamma X_i + u_i$
 - Address the causal effect of **property right institutions** on GDP
 - Instrumental variable approach:
 - Instrument Z: mortality rates in colonies in XVII-XIX century “*(Potential) settler mortality*”
 - Idea
 - Potential settler mortality rate → type of colonization → institutions settled in the colonies → current institution (INST) in the ex-colonies → current economic performance
 - $Z \rightarrow INST_{past} \rightarrow INST \rightarrow y$
 - $Z \rightarrow INST_{past}$
 - Favorable environment to colonization (low mortality rate) → *European Institutions*
 - Strong private property rights' protection and constraints to government and elites' power
 - Unfavorable environment to colonization (high mortality) → *Extractive states*
 - Scarce rights' protection with respect to the power of elites (economic e political)
 - $INST_{past} \rightarrow INST_{present}$
 - Costs of institutional changes + opposition of interest's groups

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Instrumental variable



- Where
 - Z = annualized mortality rates (per 1000) in XIX century (vary across countries)
 - INST = protection against «risk of expropriation» index, Political Risk Services 1985-95
 - ✓ «De facto» measure based on experts: 0=minimal protection; 10=max protection
 - Y= Per capita GDP in 1995

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Ols: results

	Whole world (1)	Base sample (2)	Whole world (3)	Whole world (4)	Base sample (5)	Base sample (6)
Dependent variable is log GDP per capita in 1995						
Average protection against expropriation risk, 1985-1995	0.54 (0.04)	0.52 (0.06)	0.47 (0.06)	0.43 (0.05)	0.47 (0.06)	0.41 (0.06)
Latitude			0.89 (0.49)	0.37 (0.51)	1.60 (0.70)	0.92 (0.63)
Asia dummy				-0.62 (0.19)		-0.60 (0.23)
Africa dummy				-1.00 (0.15)		-0.90 (0.32)
"Other" continent dummy				-0.25 (0.20)		-0.04 (0.69)
R ²	0.62	0.54	0.63	0.73	0.56	
Number of observations	110	64	110	110	64	64

- Africa *dummy* (Easterly and Levine, 1997)

IV, first stage: graphical representation

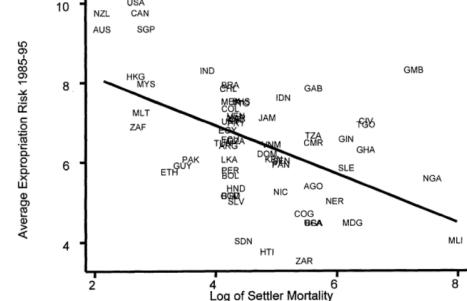


Table 3: **mortality rate** → type of settlement → past institutions in the colonies
 → **current institutions** in the ex-colonies

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IV, first stage: results

	Base sample (1)	Base sample (2)	Base sample without Neo-Europe (3)	Base sample without Neo-Europe (4)	Base sample without Africa (5)	Base sample without Africa (6)	Base sample with continent dummies (7)	Base sample with continent dummies (8)
Log European settler mortality	-0.61 (0.13)	-0.51 (0.14)	-0.39 (0.13)	-0.39 (0.14)	-1.20 (0.22)	-1.10 (0.24)	-0.43 (0.17)	-0.34 (0.24)
Latitude		2.00 (1.34)		-0.11 (1.50)		0.99 (1.43)		2.00 (1.40)
Asia dummy						0.33 (0.49)	0.47 (0.50)	
Africa dummy						-0.27 (0.41)	-0.26 (0.41)	
"Other" continent dummy						1.24 (0.84)	1.1 (0.84)	
R ²	0.27	0.30	0.13	0.13	0.47	0.47	0.30	0.33

Dependent variable: Average Protection Against Expropriation Risk in 1985-1995

IV, second stage, GDP per capita

	base sample (1)	sample (2)	Neo-Europes (3)	Neo-Europes (4)	world Africa (5)	without Africa (6)	continent dummies (7)	continent dummies (8)
Panel A: Two-Stage Least Squares								
Average protection against expropriation risk 1985–1995	0.94 (0.16)	1.00 (0.22)	1.28 (0.36)	1.21 (0.35)	0.58 (0.10)	0.58 (0.12)	0.98 (0.30)	1.10 (0.46)
Latitude		-0.65 (1.34)		0.94 (1.46)		0.04 (0.84)		-1.20 (1.8)
Asia dummy						-0.92 (0.40)	-1.10 (0.52)	
Africa dummy						-0.46 (0.36)	-0.44 (0.42)	
"Other" continent dummy						-0.94 (0.85)	-0.99 (1.0)	

- **Effect stronger than with Ols!!!**
 - ✓ For the authors this is evidence of *attenuation bias*
 - Latitude no more significant (and wrong signed)
 - For the authors, evidence that previous studies were capturing spurious correlation
 - Similar result for Africa dummy

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Conclusions

Causal effect of property rights institutions on GDP per capita is important

Probably economic institutions are the result of more fundamental institutions

The results indicate that reducing expropriation risk (or improving other aspects of the "cluster of institutions") would result in significant gains in income per capita, but do not point out what concrete steps would lead to an improvement in these institutions. Institutional features, such as expropriation risk, property rights enforcement, or rule of law, should probably be interpreted as an equilibrium outcome, related to some more fundamental "institutions," e.g., presidential versus parliamentary system, which can be changed directly" p. 1395

Exclusion Restriction

Possible effects of Z on Y that do not go through $INST$:

- Unhealthy environment has a direct impact on economic performance (counter-argument: Natives' immunization to malaria and yellow fever)
- other "geographical" factors (counter-argument: the distance from the equator and the Africa dummy for Africa are not significant if one controls for institutions)
- omitted variables (Colonizer country (culture), legal origin, climate, religion, geography, natural resources, soil quality, ethnolinguistic fragmentation, diseases)
- Over-identification test

Validity of the Exclusion Restriction

- Links between (ex-)colonies and colonizing countries (e.g. trade, capital, ideas...)
- Legacies of colonial experience on colonizers
 - colonial historical legacies influence people's views, attitudes, incentives and decisions
 - * Impoverishment of natural resources and human capital (e.g. slavery)
 - * Effects on culture/social capital (e.g. religion, trust, language)
 - * Infrastructures (road and railroad investments)
 - colonizers brought with them, beside their institutions, themselves as well (Glaeser Hypothesis)

Institutions or Human Capital? - Glaeser 2004

Could the influence of AJR's proposed instruments on today's development work through human capital? Put differently, perhaps when colonizers settled, they brought with them their know-how rather than constraints on the executive.

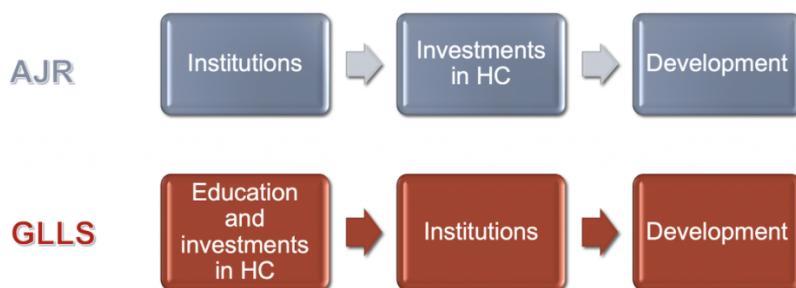


Figure 2.4: AJR vs GLLS Hypothesis

"The main argument in Acemoglu et al. (2001) is that (...) they [Europeans] themselves decided to settle in a specific colony.

*However, it seems at least as plausible that what they brought with them is themselves, and therefore their know-how and human capital. Put differently, perhaps when colonizers settles, they **brought with them their know-how** rather than constraints on the executive"*

2.2.4 Contracting vs Property Rights Institutions

We can distinguish between (1) *property rights* institutions and (2) *contracting* institutions. They both influence costs and benefits of starting a new legal business.

Which one is more important for a country's growth?

Property Rights Institutions

Two instruments Z :

1. *settler mortality*
2. *population density before colonization* (idea: higher density discourages settlers)

Same logic as in the previous paper:

$Z \rightarrow$ colonization type \rightarrow past institutions in the colonies \rightarrow current institutions in the ex-colonies
 \rightarrow current economic performance

Contracting Institutions

Instrument: "Legal Origin" of the ex-colony:

- *civil law* (french): legal system where core principles are codified into a referable system which serves as the primary source of law
- *common law* (english): body of law derived from judicial decisions of courts

In the ex-colonies, the legal system is exogenously determined by the juridical tradition of the settler country

Better *contracting institutions* (today) are related to the *common-law* system due to less formal rules and less procedural constraints

Measures of Institutions:

- Property rights institutions
 - Constraint on the executive
 - Protection against government expropriation
 - Private property protection
- Contracting institutions
 - Number of formal legal procedures necessary to resolve a simple case of collecting on an unpaid check
 - Procedural complexity in resolving the case of an unpaid commercial debt
 - Number of procedures necessary to resolve a court case involving the same commercial debt
- World Business environment survey (WBES, WB), "*de facto*" measure of institutions

Dependent Variables:

- GDP per capita
- Investment/GDP
- Credit to the private sector/GDP
- Stock Market Capitalization/GDP

Acemoglu & Johnson (2005), main conclusions

- ***Property rights institutions*** → growth, investments and financial sector development
- ***Contracting institutions*** → characteristics of the financial system (less developed stock market)
 - contracting institutions have no causal effect on GDP, investment etc...
 - the only effect is on the characteristics of the financial system

Proposed Explanation:

- individuals may react to weak contracting institutions
 - Private contracts, price increases (interest rate), reputation
- these solutions are not feasible to correct for weaknesses of the property rights institutions

De Villanova: results depend upon the validity of the *exclusion restriction*