

Does history matter?

Institutions and Economic growth

Andrei Markevich (NES)

First lecture in the framework on Russian history in
institutional perspective,
High School of Economics, Moscow,
October-November 2012

Plan

- Does history matters? Path dependence and QWERTY effect
- Institutions
 - Douglas North and the concept of institutions
 - Endogenous institutions: Genoese and Maghribi merchants
- Intuitions and economic growth: empirics
 - Reversal of fortune
 - Second generation literature

Does history matter?

Path dependence and QWERTY effect (David 1985)

- The puzzle: Why do we continue to operate QWERTYUIOP keyboard when more efficient alternatives exist?

Path dependence and QWERTY effect (David 1985)

- The puzzle: Why do we continue to operate QWERTYUIOP keyboard when more efficient alternatives exist?
- Early advantage: minimized the problem with typebar clashes in early mechanical typewriters.
- Universal standard by late 19th C.
- ‘Lock-in’ effect

QWERTY: why is it difficult to switch?

- A. Technical interrelatedness
 - Arose from fact that typewriters only one element of system, involving typists & organisations for training typists as well as hardware.
 - As more people used QWERTY arrangement, so it became more difficult for a potential typist to justify learning another arrangement or for an employer to justify buying a different typewriter.
- B. Economies of scale
 - Conventional econs of scale could be exploited by private business colleges teaching touch-typing.
 - Also, if you are producing 1m QWERTY keyboards, unit costs will be lower than if you are producing 100. Hence difficult to compete against established standard.
- C. Quasi-irreversibility of investment (sunk costs)
 - Difficult to unlearn a particular arrangement.

Institutions, history and economic growth

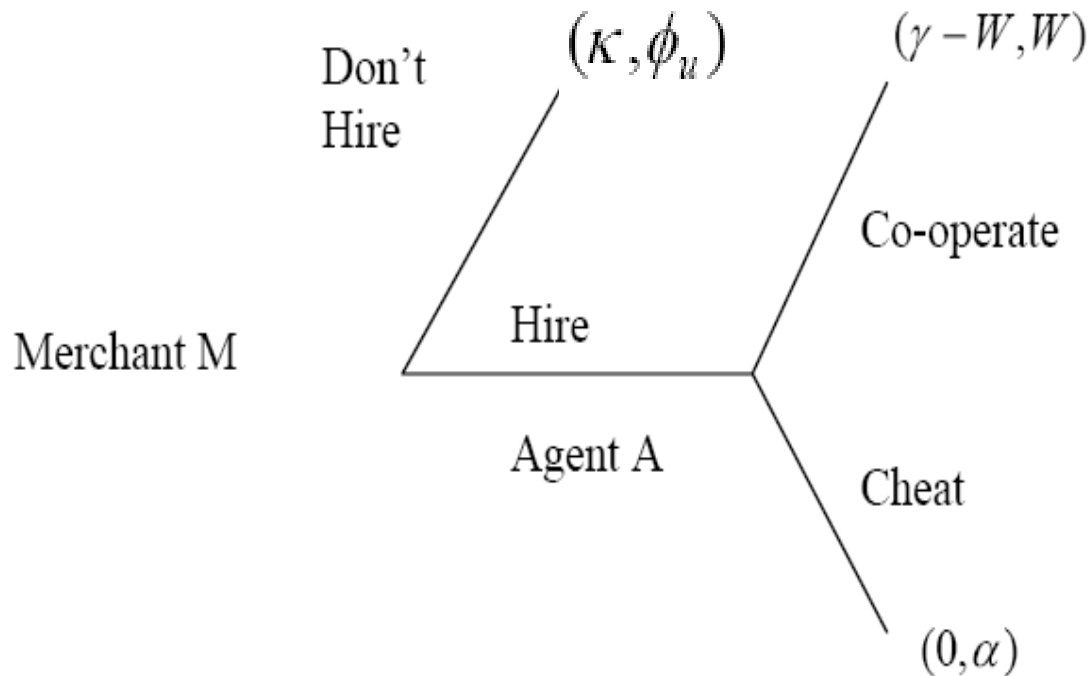
- North (1990): “rules of the game”, which define and limit set of choices individuals can make, i.e. in some sense, “fundamental” causes of growth
 - Reduce uncertainty and provide incentives
- Slow change of institutions
- Historical institutions in general (property rights, rule of law etc.) can influence on current development
- Exogenous change in institutions, let say, because of political reasons – Glorious Revolution in England -> British Industrial Revolution

Endogenousing Institutional Choice: Concept of Cultural Beliefs (Greif 1996)

- Cultural beliefs are common ideas that govern interactions
 - expectations about actions that others will take in various contingencies
 - known from socialization process
 - non verified empirically or analytically proved
 - should be self-enforcing
- Difference in cultural beliefs -> different choice of institutions -> long-run consequences -> divergence between parts of the world

Modeling Merchant-Agent Fundamental Problem of Exchange

- M merchants, A agents
- Players live infinite number of periods. Discount factor β



hh = probability unemployed honest agent is hired

hc = probability unemployed cheater is hired

σ -exogenous probability that merchant forced to terminate contract even if no cheating

Agency problem in the Mediterranean trade XI-XII Cc.

- Main problem on the both side of Mediterranean (Genoese and Maghribi merchants): how to handle merchant's goods abroad? Which contract should be suggested to an agent?
- Similarities: merchants from both societies formed networks of trust and hired agents.
- But also significant differences in way 2 societies deterred opportunistic behavior within networks:
 - (1) Maghribi traders adopted collectivist approach to enforcement of contracts
 - (2) Genoese adopted individualist approach.

Merchant-Agent FPOE (continue)

- Proposition 1: Assume $\beta \in (0,1)$ and $h_c < 1$. Optimal wage (lowest wage for which an agent's best response is to play honest) is $W^* = w(\beta, h_h, h_c, \sigma, \phi_u, \alpha) > \phi_u$ and w is monotonically decreasing in (β, h_h) and monotonically increasing in $(h_c, \sigma, \phi_u, \alpha)$
- Interpretation:
 - Merchant induces honesty by carrot of wage higher than reservation utility ($W^* > \phi_u$) and by stick of terminating relationship
 - For a high enough wage, difference between present value of lifetime expected utility of an honest agent is higher than what an agent can gain by one-period cheating ($V_h \geq \alpha + V_c^u$) \rightarrow best response is honesty
 - Minimum wage that ensures honesty decreases in factors that increase lifetime expected utility of honest agent relative to cheater (β, h_h) and increases in factors that increase relative lifetime expected utility of cheater $(h_c, \sigma, \phi_u, \alpha)$.

Collectivist and Individualist Solutions with Full Information

- Suppose that the history of the game is common knowledge. How can differences between collectivist and individualist societies manifest themselves in agency relations?
- C: everyone expected to respond to what has happened between any particular merchant and agent. Merchant hires randomly only from among unemployed agents who have never cheated
- I: no collective response. Merchant hires randomly from among all unemployed agents
 - Note that W^* is higher under the individualist strategy.
- Proposition 2: Both individualist and collectivist strategy combinations are a subgame perfect equilibrium of the game

Collectivist and Individualist Solutions with Full Information: Discussion

- Individualist Strategy
 - Merchant pays W^* to induce honesty according to Proposition 1
 - Merchant indifferent between hiring cheater and honest agent ($h_h = h_c > 0$)
 - On equilibrium path, no cheating
 - Off equilibrium path, after cheating, merchant needs to pay same wage to cheater and honest agent to induce honesty
- Collectivist Strategy
 - Merchant pays W^* to induce honesty according to Proposition 1
 - Merchant never hires cheater ($h_c = 0; h_h > 0$)
 - On equilibrium path, no cheating
 - Off equilibrium path, after cheating, merchant needs to pay higher wage to cheater than to honest agent to induce honesty
 - Hence merchant prefers to hire honest agent who has never cheated

Incomplete Information

- Information was costly. Assume that merchant has to invest Λ each period to learn private histories of all other merchants. Otherwise, he knows only his own history.
- Proposition 3: W_{-i}^* is the minimum wage that merchant i has to pay his agent if only he does not invest; W_c^* is the equilibrium wage under the collectivist strategy in the full information game. Invest and the collectivist strategy is an equilibrium iff $W_{-i}^* - W_c^* \geq \Lambda$. Not to invest and the individualist strategy is an equilibrium whereas invest and the individualist strategy is not an equilibrium
- Discussion:
 - I: history has no value, since agent's wage independent of history, so merchants do not invest
 - C: optimal wage is function of agent's history, so merchants will invest in information so long as cost of that investment is less than wage premium needed to keep cheaters honest

Historical Evidence on Trading Networks: Maghribi Traders

- Maghribi traders: a relatively small group of Jewish merchants trading in Islamic world of N. Africa. These Jewish merchants had networks of family members scattered throughout Islamic world from Spain to Indonesia.
- Documents of Cairo *geniza*
 - Abundant evidence that merchants & their agents took great care to maintain reputation, since this affected ability to trade in future.
 - Evidence that agents who behaved opportunistically punished collectively by other merchants. But rare.
 - In 1055, an agent who lived in Jerusalem, Abun ben Zedaka, was accused (but not charged in court) of embezzling money from a Maghribi trader. When word of this accusation reached other Maghribi traders, merchants as far away as Sicily cancelled their agency relations with him.

Historical Evidence on Trading Networks: Genoese Merchants

- Evidence based on surviving commercial correspondence and contracts from Italian city states
 - Suggest the lack of collective punishment and informal communication.
 - Individualistic methods of deterring opportunistic behaviour, typical of West.
- The “patron system” (Greif): Genoese agent induced to be honest by fear of termination of contract with particular merchant represented by family or clan.

Evidences on Cultural Beliefs

- Why the difference between the 2 societies? Cultural beliefs provided different equilibriums
- Maghribis: equilibrium with collective punishment consistent with Jewish belief that “All Israel is responsible for every member”.
- Genoese: Medieval Christianity placed individual rather than social group at centre of its theology, so collective punishment not an equilibrium
 - At the same time, Genoa experienced a high level of immigration. For instance, Genoa's population increased from 30,000 to 100,000 between 1200 and 1300.

C&I societies: Implications for wealth distribution and social structure

- C: If merchant acts dishonestly while acting as agent, he cannot in future hire agents under threat of collective punishment. This lowers value of merchant's capital, which effectively serves as bond. Hence lower wage needed to keep merchant honest
- I: Past cheating does not reduce rate of return on merchant's capital. But having capital to invest increases merchant's reservation utility relative to agent's. Hence higher wage needed to keep merchant honest, so merchants discouraged from hiring other merchants
- Implications for wealth distribution and social mobility
 - C: Horizontal social structure (merchants also act as agents) and low social mobility
 - I: Vertical social structure (merchants less likely to act as agents) and better opportunities for social mobility

Historical Evidences on Wealth Distributions

- Agency measure ($A/(A+M)$) is defined as the number of times a trader operated as an agent (A) divided by the number of times a trader operated as either a merchant or an agent (M+A). It equals one if the trader was only an agent, zero if he was only a merchant, and some intermediate value in between if he was both a merchant and an agent.
 - In 175 letters written by Maghribi traders and in which 652 agency relations are reflected, 119 traders appear more than once, and almost 70 percent of them have an agency measure between zero and one.
 - Only 21 percent of the 190 trader families mentioned more than once in the cartulary of Giovanni Scriba (1155-64) have an agency measure between zero and one.
- Forms of business associations
 - Maghribi traders used mainly partnership
 - Genoese traders mainly used commenda contracts

Expanding Trade

- C and I : self-enforcing equilibrium strategies, equally efficient in an unchanging world.
 - But how the two societies respond to opportunities for expanding trade?
- Greif argues: individualist society better able to cope with such changes → better suited to economic development
 - Difficult to bring outsiders into institutional framework with collective enforcement. Collectivist economy needs to pay higher wage for foreign agent than local agent because of uncertainty about collective punishment. Hence prefer to employ local agents.
- Historical evidences: Maghribis expanded in segregated (collectivist) way (hiring other Maghribis as agents), Genoese in integrated (individualist) way (hiring agents from other economies)

Legal System in Collective and Individualist Societies

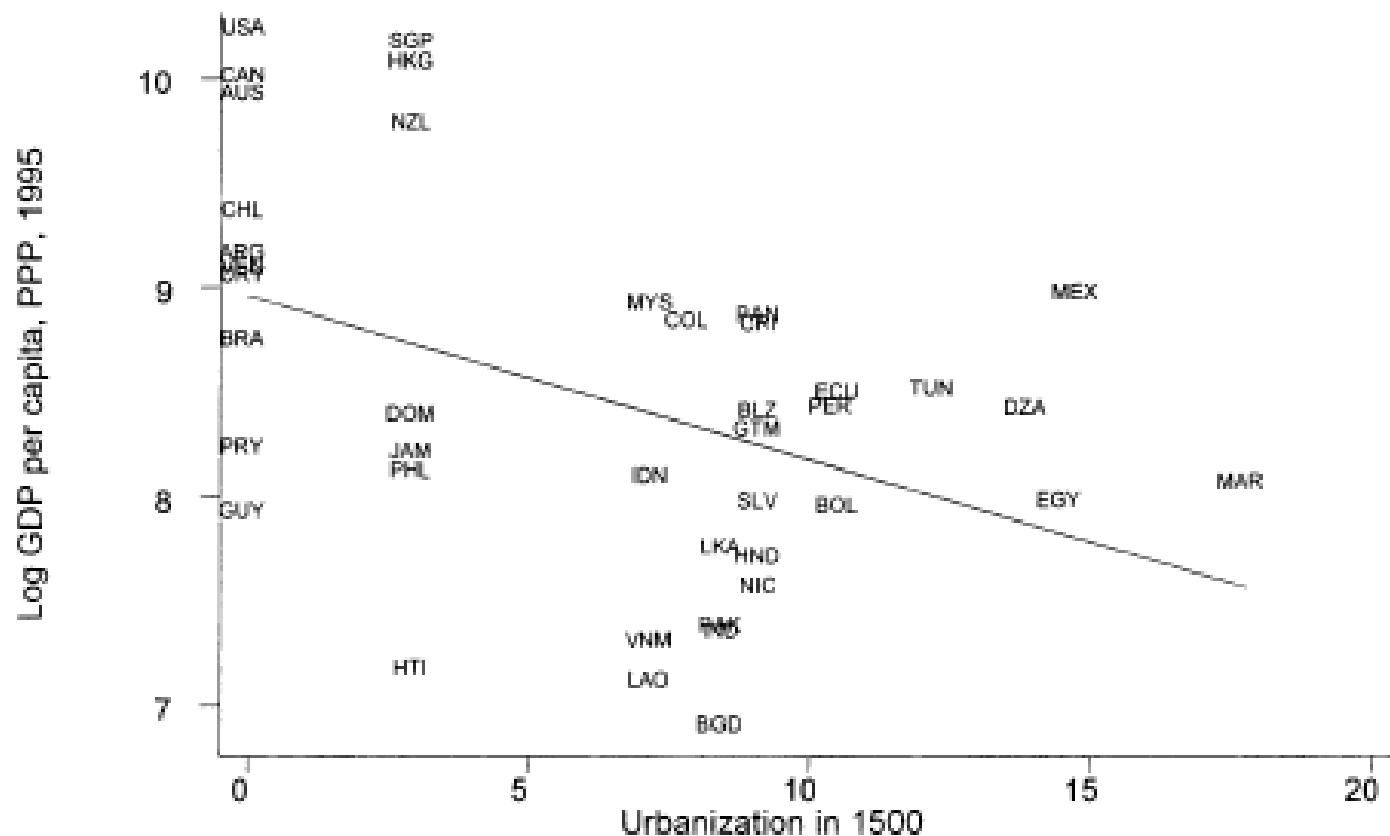
- C: no demand for state or a sophisticated legal system. Settlement of disputes can be dealt with entirely within merchant community.
- I: formal procedure for registration of contracts & recourse to a legal system are useful ways of bolstering reputation mechanism.
- Historical evidences:
 - During C12th, Genoese ceased entering contracts with a handshake & developed extensive legal system for registration & enforcement of contracts. Customary contract law that governed relations among Genoese traders codified as permanent courts established.
 - By contrast, Maghribis continued to enter contracts informally, utilise an informal code of conduct to govern exchange & resolve disputes informally, despite existence of well-developed Jewish communal court system.

Relative Importance of Forced Separation in Collectivist and Individualist Societies

- Reduction in the probability of forced separation, a , reduces the optimal wage
- C : the probability that an honest agent will be rehired is close to one. Thus, under collectivist beliefs a merchant's incentive to reduce the probability of forced separation is marginal, or even absent.
- I : merchants are motivated to establish an organization that reduces the likelihood of forced separation.
- Historical evidences:
 - The Genoese (and other Italians) not the Maghribis introduces family firm (from which one step to a share company that appears once non-family members are incorporated)

Institutions and Growth: Reversal of Fortune

Reversal of fortune: colonial countries which were relatively rich in 1500 are now relatively poor



Sources: Acemoglu D., S. Johnson, and J. Robinson (2002), "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution", *QJE* 117, pp. 1231-94.

What is the mechanism of reversal?

- Institutional hypothesis: development depended on intuitions established by colonizers
 - institutions of property rights (for a broad section of society) vs extractive institutions
- European colonialism caused an “institutional reversal”
 - Relatively poor regions were sparsely populated that enable Europeans to settle and develop institutions encouraging investments
 - In rich regions a large population and relative prosperity made extractive institutions more profitable
 - Additional source of variation in institutions determined by how suitable for Europeans climate was: mortality rates

Welfare in the past and Institutions

	Dependent variable is:					
	Average protection against expropriation risk, 1985–1995			Constraint on executive in 1990		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: Without additional controls</i>						
Urbanization in 1500	-0.107 (0.043)		-0.001 (0.059)	-0.154 (0.066)		-0.037 (0.098)
Log population density in 1500		-0.37 (0.10)	-0.37 (0.15)		-0.49 (0.15)	-0.40 (0.25)
R^2	0.14	0.16	0.25	0.12	0.12	0.18
Number of observations	42	75	42	41	84	41
<i>Panel B: Controlling for latitude</i>						
Urbanization in 1500	-0.097 (0.042)		-0.001 (0.059)	-0.159 (0.067)		-0.038 (0.099)
Log population density in 1500		-0.31 (0.10)	-0.34 (0.15)		-0.45 (0.16)	-0.41 (0.25)
Latitude	2.87 (1.48)	3.53 (1.25)	2.57 (1.41)	-1.49 (2.38)	2.63 (2.01)	-1.86 (2.34)
R^2	0.21	0.24	0.31	0.13	0.13	0.19
Number of observations	42	75	42	41	84	41

Sources: Acemoglu D., S. Johnson, and J. Robinson (2002), “Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution”, *QJE* 117, pp. 1231-94.

Welfare in the past, Institutions and Welfare today

Sources: Acemoglu D.,
S. Johnson, and J.
Robinson (2002),
“Reversal of Fortune:
Geography and
Institutions in the Making
of the Modern World
Income Distribution”,
QJE 117, pp. 1231-94.

		Dependent variable is log GDP per capita (PPP) in 1995					
Institutions as measured by:		Average protection against expropriation risk, 1985–1995		Constraint on executive in 1990		Constraint on executive in first year of independence	
		(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: Second-stage regressions</i>							
Institutions		0.52 (0.10)	0.88 (0.21)	0.84 (0.47)	0.50 (0.11)	0.37 (0.12)	0.46 (0.16)
Urbanization in 1500		-0.024 (0.021)		0.030 (0.078)		-0.023 (0.034)	
Log population density in 1500			-0.08 (0.10)		-0.10 (0.10)		-0.13 (0.10)
<i>Panel B: First-stage regressions</i>							
Log settler mortality		-1.21 (0.23)	-0.47 (0.14)	-0.75 (0.44)	-0.88 (0.20)	-1.81 (0.40)	-0.78 (0.25)
Urbanization in 1500		-0.042 (0.035)		-0.088 (0.066)		-0.043 (0.061)	
Log population density in 1500			-0.21 (0.11)		-0.35 (0.15)		-0.24 (0.17)
R^2		0.53	0.29	0.17	0.37	0.56	0.26
Number of observations		38	64	37	67	38	67
<i>Panel C: Coefficient on institutions without urbanization or population density in 1500</i>							
Institutions		0.56 (0.09)	0.96 (0.17)	0.77 (0.33)	0.54 (0.09)	0.39 (0.11)	0.52 (0.15)

Question

- Which institutions matter for growth ?

Unbundling Institutions

Acemoglu and Johnson (2005)

- 2SLS: explain income per head by contracting and property rights institutions;
 - use legal system and settler mortality as instruments

$$Y_c = \alpha PR_c + \beta CI_c + \text{controls} + \acute{\epsilon}_c$$

$$PR_c = \delta_1 L_c + \eta_1 M_c$$

$$CI_c = \delta_2 L_c + \eta_2 M_c$$

$$\text{Cov}(\acute{\epsilon}_c, L_c) = 0 \text{ and } \text{Cov}(\acute{\epsilon}_c, M_c) = 0$$

TABLE 3
FIRST-STAGE REGRESSIONS FOR CONTRACTING AND PROPERTY RIGHTS INSTITUTIONS
(OLS, Sample of Ex-Colonies)

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Measure of Contracting Institutions						
	Dependent Variable: Legal Formalism		Dependent Variable: Procedural Complexity		Dependent Variable: Number of Procedures	
English legal origin	-1.98 (.23)	-1.79 (.20)	-2.28 (.34)	-2.24 (.29)	-11.29 (3.31)	-12.39 (2.88)
Log settler mortality	.09 (.09)		-.08 (1.32)		1.59 (1.29)	
Log population density in 1500		.04 (.06)		-.13 (.86)		-.38 (.84)
R ² in first stage	.64	.58	.47	.47	.23	.22
Observations	53	64	60	63	61	69
Panel B. Measure of Property Rights Institutions						
	Dependent Variable: Constraint on Executive		Dependent Variable: Protection against Expropriation		Dependent Variable: Private Property	
English legal origin	-.002 (.48)	.05 (.43)	.60 (.31)	.87 (.30)	.72 (.22)	.73 (.18)
Log settler mortality	-.66 (.19)		-.71 (.12)		-.30 (.09)	
Log population density in 1500		-.40 (.13)		-.36 (.09)		-.29 (.05)
R ² in first stage	.21	.15	.50	.35	.37	.47
Observations	51	60	51	57	52	60

NOTE.— Standard errors are in parentheses. All regressions are cross-sectional OLS with one observation per country. For detailed sources and definitions, see App. table A1.

TABLE 4
 CONTRACTING VS. PROPERTY RIGHTS INSTITUTIONS: GDP PER CAPITA AND INVESTMENT-
 GDP RATIO (2SLS)

	INSTRUMENT FOR PROPERTY RIGHTS INSTITUTIONS					
	Log Settler Mortality (1)	Log Population Density (2)	Log Settler Mortality (3)	Log Settler Mortality (4)	Log Settler Mortality (5)	Log Settler Mortality (6)
Panel A. Dependent Variable: Log GDP per Capita, Second Stage of 2SLS						
Legal formalism	.05 (.24)	-.002 (.21)			.95 (.15)	.85 (.45)
Procedural complexity			.097 (.17)			
Number of procedures				.02 (.04)		
Constraint on executive	.99 (.29)	.88 (.27)	.84 (.18)	.88 (.23)		
Average protection against risk of expropriation					.99 (.16)	
Private property						2.45 (.81)
Results in Equivalent OLS Specification						
Measure of contracting institutions	-.16 (.10)	-.13 (.10)	-.050 (.07)	-.013 (.009)	.11 (.09)	.01 (.10)
Measure of property rights institutions	.31 (.07)	.29 (.07)	.94 (.06)	.32 (.06)	.63 (.08)	.74 (.14)
Observations	51	60	60	61	51	52
Panel B. Dependent Variable: Investment-GDP Ratio, Second Stage of 2SLS						
Legal formalism	-.80 (1.55)	-1.94 (1.37)			.57 (1.08)	3.83 (2.52)
Procedural complexity			-.60 (1.10)			
Number of procedures				-.08 (.23)		
Constraint on executive	4.70 (1.87)	4.24 (1.77)	4.21 (1.20)	4.06 (1.44)		
Average protection against risk of expropriation					4.68 (1.11)	
Private property						13.16 (4.57)
Results in Equivalent OLS Specification						
Measure of contracting institutions	-1.05 (.83)	-.94 (.76)	-.50 (.60)	-.08 (.07)	.67 (.71)	.14 (.78)
Measure of property rights institutions	1.08 (.57)	1.00 (.51)	1.5 (.48)	1.31 (.49)	3.83 (.65)	4.68 (1.08)
Observations	51	60	60	61	51	52

NOTE.—Standard errors are in parentheses. All regressions are cross-sectional with one observation per country. The

Acemoglu & Johnson
(2005)

Policy Choices Are Not Institutions Glaeser et al (2004)

- Settler mortality not a valid instrument: Proxy for current disease environment which has a direct effect on income level.
- Was it human capital that the European brought rather than institutions?
- Standard measures of institutional quality do not equate to ‘constraints’. Represent quality of policies in the previous period not quality of institutions.
- In many cases growth does lead to better governance. What matters for security of property rights is also ability to commit to good behaviour or other constraints on abuse of power.

Second generation literature

- N. Nunn: slave trade (via linguistic fractionalization and poor state institutions) negatively correlated with per capita income today.
- L. Iyer: British direct colonial rule in India is negatively correlated with access to public goods today and positively with agricultural productivity.
- N. Chen: distribution of potatoes positively affected urban growth.
- And many others.

Summary

- History and institutions seem to matter
- Mechanisms are needed to be explored in more details