

Econ 210a: Commercial Revolutions (February 5, 2020a)

J. Bradford DeLong

Spring 2019
Evans 648
W 1:10-3:00 pm

<<https://bcourses.berkeley.edu/courses/1487686/>>

<<https://github.com;braddelong/public-files/blob/master/econ-210a-lecture-3a.pptx>>

Commercial Revolutions: Readings for February 5...

Jeremiah E. Dittmar (2011): Information Technology and Economic Change: The Impact of the Printing Press <<http://qje.oxfordjournals.org/content/126/3/1133.abstract>>

J. Bradford DeLong and Andrei Shleifer (1993): Princes and Merchants: European City Growth before the Industrial Revolution <<http://www.jstor.org/stable/725804>>

Daron Acemoglu, Simon Johnson, and James Robinson (2005): The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth <<http://www.jstor.org/stable/4132729>>

Global Numbers

Longest-Run Global Economic Growth (2019)

Date	ideas Level H	Total Real World Income Y (billions)	Average Real Income per Capita y (per year)	Total Human Population L (millions)	Rate of Population and Labor Force Growth n	Rate of Efficiency-of-Labor Growth g	Rate of Ideas-Stock Growth h
-68000	1.0	\$0	\$1,200	0.1			
-8000	5.0	\$3	\$1,200	2.5	0.005%	0.000%	0.003%
-6000	6.3	\$6	\$900	7	0.051%	-0.014%	0.011%
-3000	9.2	\$14	\$900	15	0.025%	0.000%	0.013%
-1000	16.8	\$45	\$900	50	0.060%	0.000%	0.030%
0	30.9	\$153	\$900	170	0.122%	0.000%	0.061%
800	41.1	\$270	\$900	300	0.071%	0.000%	0.035%
1500	53.0	\$450	\$900	500	0.073%	0.000%	0.036%
1770	79.4	\$825	\$1,100	750	0.150%	0.074%	0.149%
1870	123.5	\$1,690	\$1,300	1300	0.550%	0.167%	0.442%
2020	2720.5	\$90,000	\$11,842	7600	1.177%	1.473%	2.061%
2100	13474.9	\$485,096	\$53,900	9000	?	0.211%	1.894%
2200	99566.8	\$3,584,405	\$398,267	9000	?	0.000%	2.000%
2500	40168118.9	\$1,446,052,279	\$160,672,475	9000	?	0.000%	2.000%

- The Commercial Revolution acceleration appears *everywhere*
- Due to globalization
- And especially to the “Columbian Exchange”
- “West” has an edge in global transport post-1500 (not pre!)
- But “West” on the defensive in Balkans until 1683
 - Mohacs 1526, Malta 1565, Cyprus 1572, Crete 1669, sieges of Vienna 1529, 1683)

“Western” Numbers

Global Growth: The Industrializing West (2019)

Date	ideas Level H	Total Real Income Y (billions)	Average Real Income per Capita y (per year)	Total “West” Population L (millions)		Rate of Population and Labor Force Growth n	Rate of Efficiency-of-Labor Growth g	Increasing Resources ρ	Rate of Ideas-Stock Growth h
-68000	1.0	\$0.01	\$1,200	0.005					
-8000	4.5	\$0.12	\$1,200	0.1		0.005%	0.000%	0.000%	0.002%
-6000	4.7	\$0.18	\$900	0.2		0.035%	-0.014%	0.000%	0.003%
-3000	7.5	\$0.45	\$900	0.5		0.031%	0.000%	0.000%	0.015%
-1000	15.0	\$1.80	\$900	2		0.069%	0.000%	0.000%	0.035%
0	23.7	\$4.50	\$900	5		0.092%	0.000%	0.000%	0.046%
800	30.0	\$7.20	\$900	8		0.059%	0.000%	0.000%	0.029%
1500	58.9	\$25.00	\$1,000	25		0.163%	0.015%	0.000%	0.096%
1770	101.0	\$105.00	\$1,400	75		0.407%	0.125%	0.257%	0.200%
1870	252.0	\$490.00	\$2,800	175		0.847%	0.693%	0.405%	0.914%
2020	8439.5	\$40,000.00	\$50,000	800		1.013%	1.922%	0.175%	2.341%

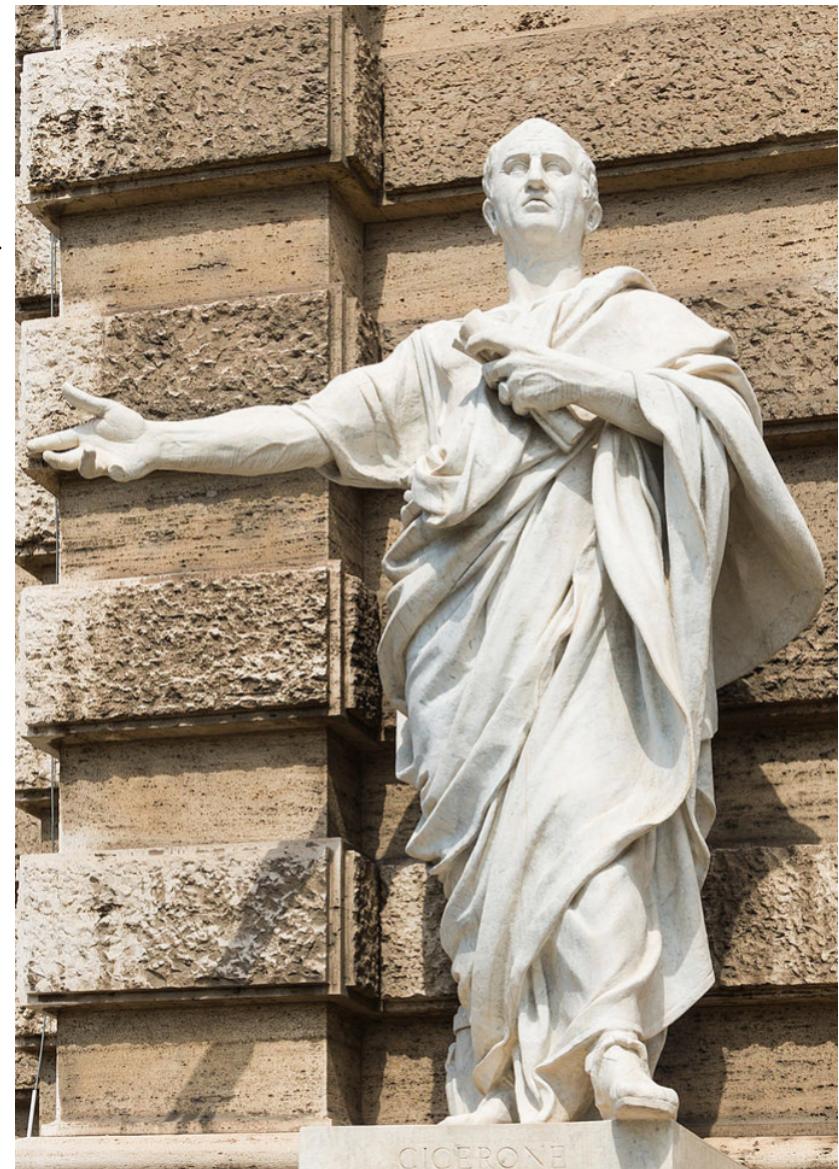
- Is ‘the west’ special between 800 and 1500?
 - Or is it just recovery from a Dark Age depression?

“West”?



Cicero on Britain

- Cicero to Atticus: *Epistulae ad Atticum* 4.17:
 - “Now for the rest. A letter from my brother contains some quite extraordinary things about Caesar's warm feelings towards me, and is corroborated by a very copious letter from Caesar himself. The result of the war against Britain is eagerly awaited, for the approaches to the island are known to be 'warded with wondrous massy walls.' It is also now ascertained that there isn't a grain of silver on the island nor any prospect of booty apart from captives, and I fancy you won't expect any of them to be highly qualified in literature or music!...”
 - “Cognosce cetera. Ex fratri litteris incredibilia de Caesaris in me amore cognovi, eaque sunt ipsius Caesaris uberrimis litteris confirmata. Britannici belli exitus exspectatur; constat enim aditus insulae esse muratos mirificis molibus. etiam illud iam cognitum est neque argenti scripulum esse ullum in illa insula neque ullam spem praedae nisi ex mancipiis; ex quibus nullos puto te litteris aut musicis eruditos exspectare...”



Reading Dittmar: Could One Innovation Make Such a Difference?

Jeremiah E. Dittmar (2011): Information Technology and Economic Change: The Impact of the Printing Press <<http://qje.oxfordjournals.org/content/126/3/1133.abstract>>:

- Information economics visits the 1500s...
- Immigration drives city growth
 - New growth, or redistribution?
- What are the economic benefits of printing books, anyway?
 - *Treviso Arithmetic* (1478): “I have often been asked by certain youths.... who look forward to mercantile pursuits, to put into writing the fundamental principles of arithmetic.... Here beginneth a Practica, very helpful to all who have to do with that commercial art...”
 - Gaspar Nicolas (1519): “I am printing this arithmetic because it is a thing so necessary in Portugal for transactions with the merchants of India, Persia, Ethiopia, and other places...”
 - Even printed books are not easy to transport: “heavy and fragile... sensitive to damp.... Outside printing cities, information on the range of available print media was incomplete and many books were not offered for sale...”
 - Agglomeration economies and externalities
- How much of a difference can a small sector—1% of GDP—actually make?

Jeremiah Dittmar (2011): The Printing Press as an Agent of Change...

- The “throw everything else into the right-hand side” estimation strategy
 - Is this an appropriate one?
 - Confounders, mediators, colliders
- The confounder is presumably that potential printers know that there is something about the city that is about to make it grow unexpectedly fast...
 - Or something about the city that produces a larger-than-expected market for books now *and* also makes it about to growth unexpectedly fast...
 - How realistic is it to worry about these?
- What would failing to control for these confounders due to the estimated coefficient?

TABLE IV
REGRESSION ANALYSIS OF PRINT MEDIA AND LOG CITY GROWTH

Independent Variable	Dependent Variable Is Log City Growth				
	Pre-Adoption		Post-Adoption		
	(1)	(2) Growth 1400–1500	(3) Growth 1500–1600	(4) Growth 1500–1700	(5) Growth 1500–1800
Print Adoption 1450–1500	0.07 (0.08)	0.19*** (0.06)	0.26*** (0.08)	0.30*** (0.09)	
Editions Per Capita	0.03 (0.03)	0.03* (0.02)	0.04 (0.03)	0.05 (0.03)	
University	-0.12 (0.11)	0.02 (0.07)	0.17* (0.09)	0.17* (0.09)	
Roman Site	0.08 (0.06)	-0.01 (0.05)	0.09 (0.08)	0.04 (0.07)	
Capital	0.31** (0.13)	0.95*** (0.16)	1.46*** (0.20)	1.98*** (0.27)	
Freedom Index	-0.23 (0.14)	0.27*** (0.10)	0.29** (0.13)	-0.07 (0.14)	
Atlantic Port	0.16 (0.18)	0.34*** (0.09)	0.64*** (0.14)	0.76*** (0.12)	
Mediterranean Port	0.21* (0.13)	0.15 (0.12)	0.57*** (0.15)	0.65*** (0.17)	
Baltic Port	-0.16 (0.18)	0.25** (0.12)	0.55** (0.22)	0.37 (0.24)	
Navigable River	0.14* (0.08)	0.18*** (0.06)	0.23*** (0.09)	0.39*** (0.09)	
Log Population	-0.22*** (0.04)	-0.30*** (0.04)	-0.42*** (0.05)	-0.64*** (0.05)	
Country FE	Yes	Yes	Yes	Yes	
Observations	291	495	515	622	
R Squared	0.33	0.32	0.35	0.47	

Note. The dependent variable in column (2) is $\ln\left(\frac{POP_{1500}}{POP_{1400}}\right)$, where POP_t is city population in year t . The dependent variable in column (3) is $\ln\left(\frac{POP_{1600}}{POP_{1500}}\right)$. The dependent variable in column (4) is $\ln\left(\frac{POP_{1700}}{POP_{1500}}\right)$. The dependent variable in column (5) is $\ln\left(\frac{POP_{1800}}{POP_{1500}}\right)$. Editions Per Capita are measured as editions

What Should We Think When IV Estimates Are so Much Bigger than OLS Ones?

- Distance from Mainz was a significant determinant of technology adoption.
- There was no statistically significant relationship between distance from Mainz and city growth before the diffusion of the printing press
- There is a very strong one after
- Why are Dittmar's IV estimates so big? 0.6 per century—a near doubling—as opposed to 0.2?

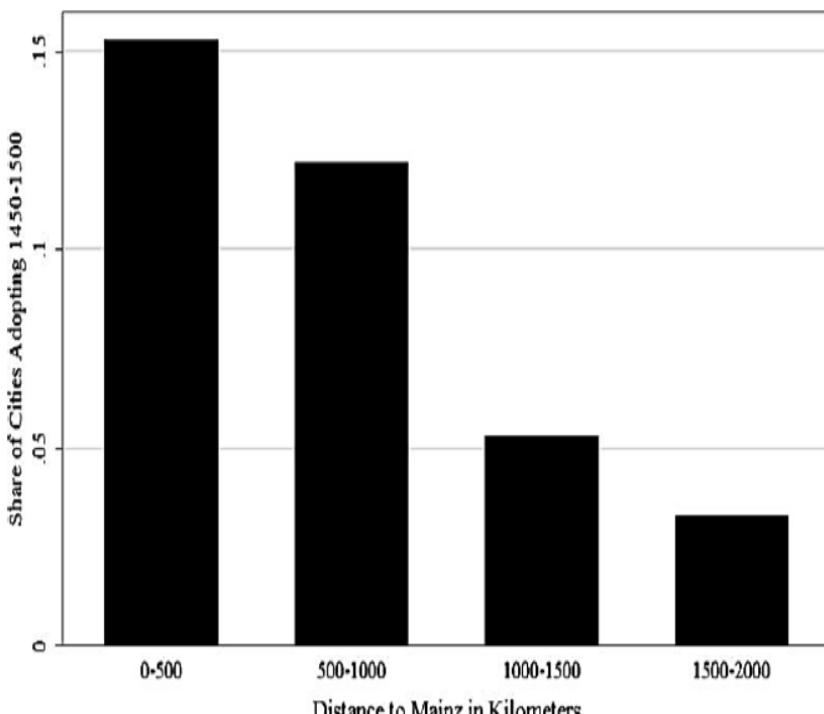


FIGURE IV

TABLE VII
INSTRUMENTAL VARIABLE ANALYSIS OF PRINTING AND LOG CITY GROWTH

Regression Model	(1)	(2) 1st Stage Adopt Print 1450–1500	(3) 2nd Stage City Growth 1500–1600
Log Distance to Mainz		-0.06*** (0.01)	
Adopt Print 1450–1500			0.58** (0.29)
Observations		410	410
R squared		0.34	0.15
F Statistic (IV)		20.74***	82.07***

Note. The dependent variable in the first stage is an indicator variable that takes the value of 1 for cities that adopted the printing press 1450–1500. The dependent variable in the second stage is log population growth: $\ln\left(\frac{POP_{1600}}{POP_{1500}}\right)$. Distance from Mainz in log kilometers is the instrumental variable for print adoption 1450–1500. Regressions control for: log city population in 1500, port location, navigable rivers, location on Roman sites, political capitals, city latitude, city longitude, the interaction between latitude and longitude, and the DeLong–Shleifer freedom index of regional institutions. The Data Appendix provides detailed descriptions of these variables. Sample restricted to balanced panel of cities with population observed 1500–1800 in economies with at least one print city. Heteroskedasticity-robust standard errors clustered by country in parentheses. Significance at the 90%, 95%, and 99% confidence levels are indicated by *, **, and ***.

Questions for Dittmar

1. What is the mechanism here? What do people who read printed books do, exactly, that generates so much in the way of population growth?
2. What does this tell us about the market system as optimal societal structure?
3. What else might have been going on that is correlated with "distance from Mainz"?
4. How should we think about the possibility of finding a "good instrument", anyway?
5. Jim Heckman likes to say that you need a structural model before you can figure out if you have a good instrument—and then you might as well do structural estimation. Is he right? Is he wrong?
6. Once again: why the divergence—and in this particular direction—between OLS and IV estimates?



Reading DeLong and Shleifer: Are Cities a Net Plus, or Simply a Redistribution of Activity?

J. Bradford DeLong and Andrei Shleifer (1993): Princes and Merchants: European City Growth before the Industrial Revolution <<http://www.jstor.org/stable/725804>>

It's a big deal:

The total population living in western European cities of 30,000 or more in 1650 was 4.7 million. Had each of the nine regions experienced an additional century and a half of absolutist rule before 1650, this urban population would have been reduced by two million according to the regression in line 1 of Table 3. In such a scenario Europe in 1650 might well have played the same role in world history that it had played in 1000: a poor and barbarous backwater compared to the high civilizations of Islam, India, and China, rather than a continent on the verge of three centuries of world domination.

Conversely, had all of western Europe been free of absolutist rule over 1050–1650, then the regression in line 1 of Table 3 predicts that Europe in 1650 would have had a total urban population of nearly 8 million and would have had forty additional cities with more than 30,000 inhabitants. Such a heightened level of commerce and urban civilization might have triggered the Industrial Revolution considerably earlier.

DeLong and Shleifer III

- Northern Italy in 1500-1650 is “surprising” as absolutist then
- England 1650-1800 is “surprising” as non-absolutist then
- WTF?! with the Italian urban boom 1050-1200
- Econometric problems
 - Normal distribution —we have only 45 observations, and 30 degrees of freedom...
 - The file-drawer problem...

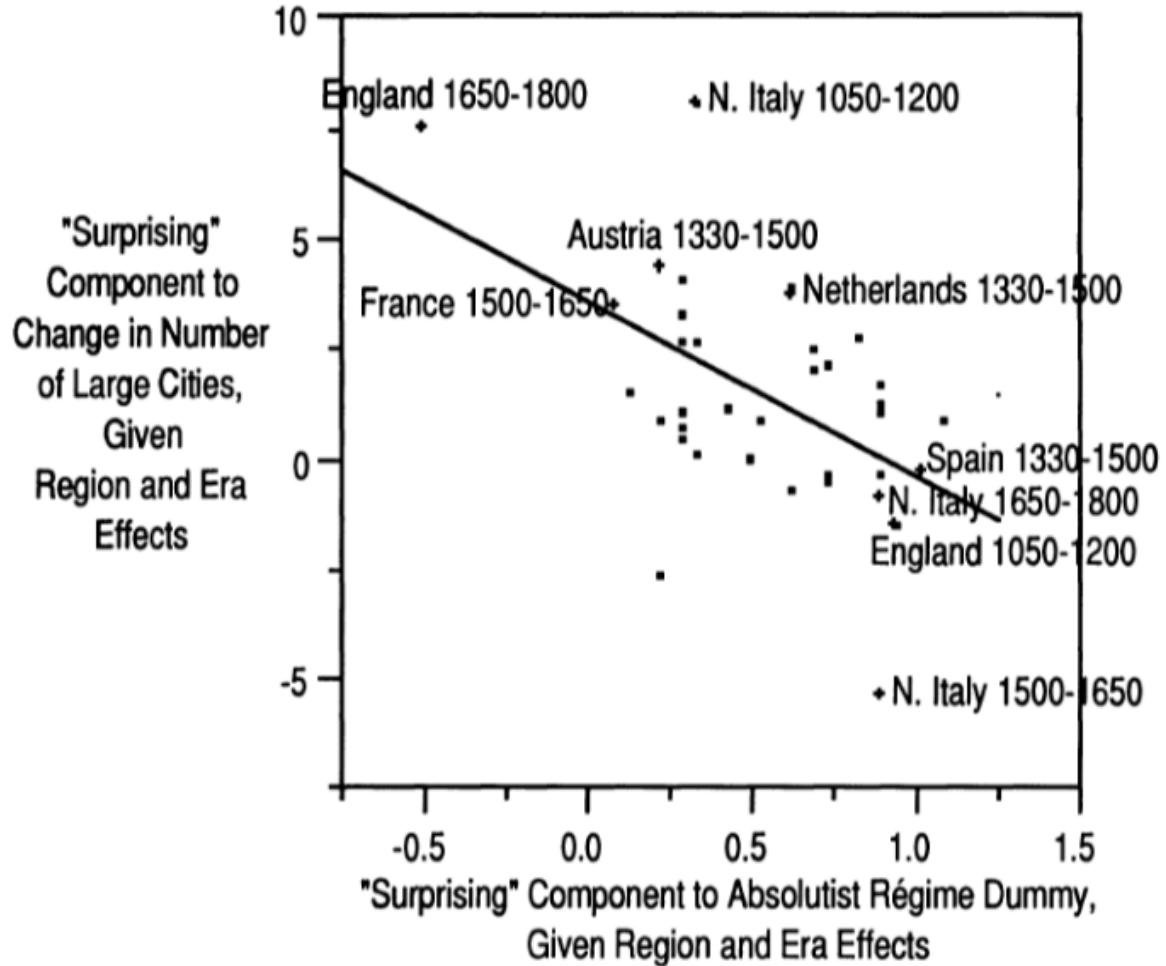


FIGURE 1.—Partial scatter of change in number of cities against absolutist regime

Questions for DeLong and Shleifer

1. In which genre is this paper: the “freedom of the citizen” genre or the “character of the elites” genre?
2. Why should absolutist versus limited government be such a big deal?
3. And why “limited”—the British government was very good at stealing stuff that did not belong to the gentry/merchant aristocracy; in fact, that’s what Marx is all about?
4. What is assumed direction of effect and mechanism?
5. Urbanization as indicator: Is this sensible?
6. New growth, or stealing urban population from elsewhere?



Charles Wilson (1966)

- “The two areas... in 1500... richest and most advanced... the quadrilateral... Milan, Venice, Florence, and Genoa; and the strip... from Ypres... to Antwerp.
- “It was not merely coincidence that these were the areas where the tradesmen of the cities had been most successful in emancipating themselves from feudal interference, and in keeping at bay the newer threat of more centralized political control offered by the new monarchies. In the fleeting intervals between the storms of politics and war, men here glimpsed the material advance that was possible when tradesmen were left in peace unflattered by the attentions of strategists who regarded their activities as the sinews of war....
- “The precocious economic development of the cities of Italy and the Low Countries was cradled in the civic independence of those cities where merchants had achieved political power...

Reading Acemoglu: Wait a Minute! It Was Spain—and Portugal!

Daron Acemoglu, Simon Johnson, and James Robinson (2005): The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth <<http://www.jstor.org/stable/4132729>>

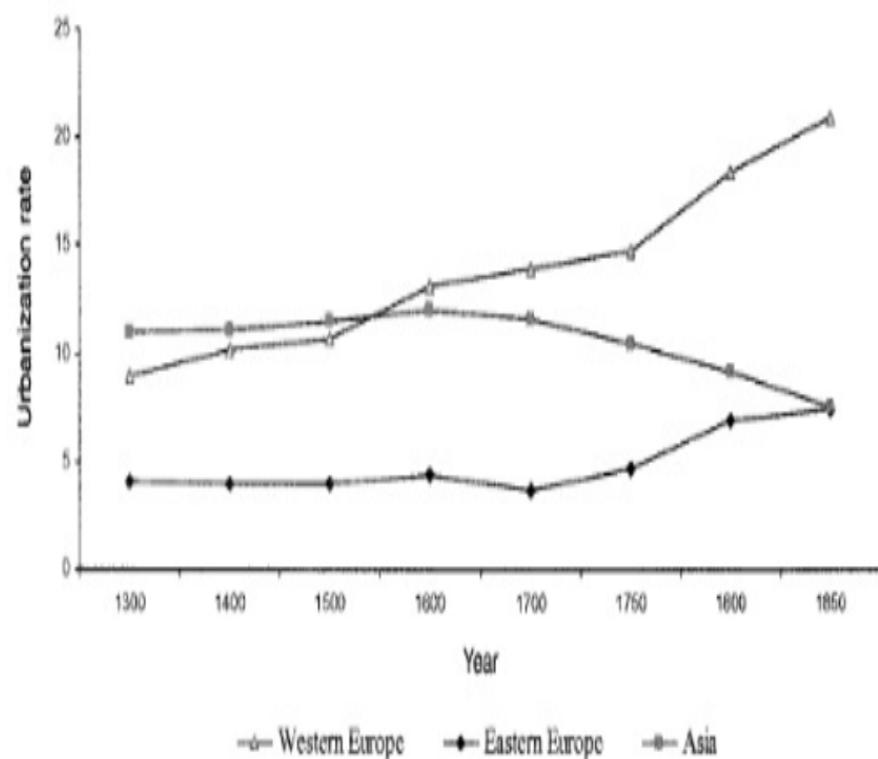


FIGURE 1A. WESTERN EUROPE, EASTERN EUROPE, AND ASIA: URBANIZATION RATES, WEIGHTED BY POPULATION, 1300–1850

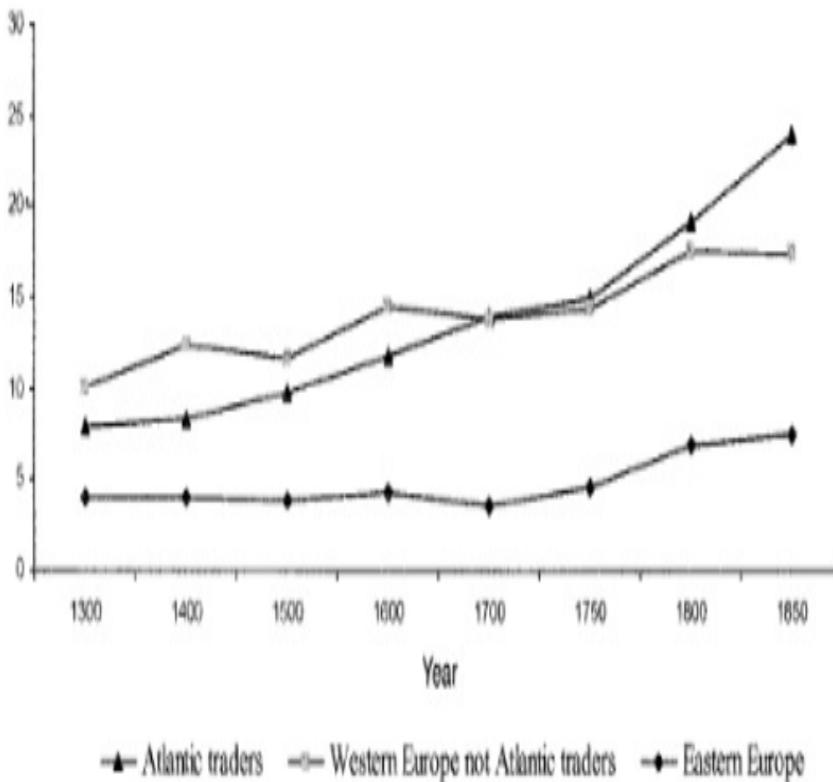


FIGURE 1B. ATLANTIC TRADERS, WEST EUROPEAN COUNTRIES NOT ATLANTIC TRADERS, AND EASTERN EUROPE: URBANIZATION RATES, WEIGHTED BY POPULATION, 1300–1850

Atlantic Western Europe is England, France, the Netherlands, Portugal, and Spain

AJR

Our hypothesis is that Atlantic trade—the opening of the sea routes to the New World, Africa, and Asia and the building of colonial empires—contributed to the process of West European growth between 1500 and 1850, not only through direct economic effects, but also indirectly by inducing fundamental institutional change. Atlantic trade in Britain and the Netherlands (or, more appropriately, in England and the Duchy of Burgundy) altered the balance of political power by enriching and strengthening commercial interests outside the royal circle, including various overseas merchants, slave traders, and various colonial planters. Through this channel, it contributed to the emergence of political institutions protecting merchants against royal power.²¹ Our hypothesis also implies that the tendency for institutional change to emerge should have been much stronger in societies with existing checks on royal power than in countries with absolutist regimes and monarchy-controlled trade monopolies, because in these latter countries Atlantic trade did not enrich and strengthen merchant groups outside the royal circle as much, and did not disturb the political status quo.

AJR

Spain, Portugal and France.—There is general agreement that Spanish and Portuguese political institutions at the turn of the sixteenth century were more absolutist than those in Britain and the Netherlands, and did not experience similar reform.²⁹

A key difference between these cases and the British-Dutch patterns is the organization of trade which, in turn, reflected differences in political institutions. Throughout this period, the granting of trade monopolies was a central tool for the rulers to raise revenue. When the power of the monarchs was constrained, they were unable to use this fiscal tool. For example, the English Parliament successfully blocked many attempts of both Tudor and Stuart monarchs to create such monopolies (Christopher Hill, 1969). Consequently, in Britain “most

Questions About AJR

1. We are talking an extra 10% of the population in cities here. Is this reasonable to attribute to the effects of good government?
2. Is 10% of the population more in cities enough to have big effects?
3. What is it about “Atlantic trade” that tends to produce good government?
4. Where does “limited government” come from that makes “Atlantic trade” a good instrument?
5. What are the direct effects of “Atlantic trade”?
6. What do AJR claim are the indirect effects?
7. Why do they think the indirect effects are materially large?
8. What would convince them they were wrong?

Catch Our Breath...

- Ask a couple of questions?
- Make a couple of comments?
- Any more readings to recommend?



Notes...

