

Economics 210A
Spring 2015

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LECTURE 3

Early Modern Growth



February 11, 2015

I. OVERVIEW

Issue

- Growth from roughly 1000 to just before the Industrial Revolution.
- Debate about how much occurred and when.

Sources of Growth before Industrialization

- Have already discussed some factors:
 - Changes in population dynamics
 - Culture
- Talk about three more today:
 - Institutions
 - Technological change
 - Labor effort

II. J. BRADFORD DELONG AND ANDREI SHLEIFER

“PRINCES AND MERCHANTS: EUROPEAN CITY GROWTH
BEFORE THE INDUSTRIAL REVOLUTION”

Topic: Institutions and Growth

- Particular institution of interest?
 - Absolutist versus limited government.
- What is assumed direction of effect and mechanism?
- Direction of causation?

Other Features

- Place and time?
- Style?

Urbanization as a Measure of Growth

- Is this sensible? Done frequently.
- When might it not be true?
- Reasons urbanization might proxy for growth in standards of living.
- Are you convinced?

Data on Pre-Industrial Cities

- de Vries for the period 1500-1800. Sources?
- Russell before 1500. Method?
- Alternative: Bairoch (and others)
 - How do these data compare?
 - Why do DeLong and Shleifer emphasize Russell-de Vries?

TABLE 1
THE THIRTY LARGEST CITIES IN EUROPE BY POPULATION (in Thousands), 1050–1800

c. 1050		c. 1200		c. 1330		c. 1500		c. 1650		c. 1800	
Cordova*	450	Palermo	150	Granada	150	Paris	225	Paris	400	London	948
Palermo*	350	Paris	110	Paris	150	Naples	125	London	350	Paris	550
Seville	90	Seville	80	Venice	110	Milan	100	Naples	300	Naples	430
Salerno	50	Venice	70	Genoa	100	Venice	100	Lisbon	150	Vienna	247
Venice	45	Florence	60	Milan	100	Granada	70	Venice	140	Amsterdam	217
Regensburg	40	Granada	60	Florence	95	Prague	70	Milan	120	Dublin	200
Toledo	37	Cordova	60	Seville	90	Lisbon	65	Amsterdam	120	Lisbon	195
Rome	35	Cologne	50	Cordova	60	Tours	60	Rome	110	Berlin	172
Barbastro	35	Leon	40	Naples	60	Genoa	58	Madrid	100	Madrid	168
Cartagena	33	Ypres	40	Cologne	54	Ghent	55	Palermo	100	Rome	153
Naples	30	Rome	35	Palermo	51	Florence	55	Seville	80	Palermo	140
Mainz	30	Bologna	35	Siena	50	Palermo	55	Florence	74	Venice	138
Merida	30	Toledo	35	Barcelona	48	Roma	55	Vienna	70	Milan	135
Almeria	27	Verona	33	Valencia	44	Bordeaux	50	Granada	70	Hamburg	130
Granada	26	Narbonne	31	Toledo	42	Lyon	50	Marseille	70	Lyon	109
Speyer	25	Salerno	30	Bruges	40	Orleans	50	Copenhagen	65	Copenhagen	101
Palma	25	Pavia	30	Malaga	40	London	50	Genoa	64	Marseille	101
Laon	25	Messina	30	Aquila	40	Bologna	50	Bologna	63	Barcelona	100
London	25	Naples	30	Bologna	40	Verona	50	Antwerp	60	Seville	96
Elvira	22	Genoa	30	Cremona	40	Brescia	49	Brussels	60	Bordeaux	96
Cologne	21	Angers	30	Pisa	38	Cologne	45	Lyon	60	Genoa	90
Trier	20	Palma	30	Ferrara	36	Seville	45	Rouen	60	Manchester	84
Caen	20	Speyer	30	London	35	Marseille	45	Danzig	60	Edinburgh	83
Lyon	20	Worms	28	Montpellier	35	Malaga	42	Leiden	55	Turin	82
Paris	20	Ferrara	27	Rouen	35	Valencia	42	Valencia	50	Florence	81
Tours	20	Orleans	27	St.-Omer	35	Ferrara	42	Prague	50	Valencia	80
Verona	20	Metz	27	Lisbon	35	Rouen	40	Hamburg	40	Rouen	80
Worms	20	Valencia	26	Angers	33	Cremona	40	Cologne	40	Nantes	77
Lisbon	15	Cremona	25	Marseille	31	Nuremburg	38	Nuremburg	40	Stockholm	76
Florence	15	London	25	Toulouse	30	Bruges	35	Ghent	40	Prague	76

From: DeLong and Shleifer, “Princes and Merchants”; Bairoch’s data

Indicator of Political Regime

- Main division is absolutist versus non-absolutist.
 - Relative benefits of binary versus finer classification.
- What counts as absolutist? Examples?
- What counts as non-absolutist?
 - Constitutional monarchies.
 - City-state-based rule by merchant oligarchies.
 - Feudal anarchy.

How do DeLong and Shleifer do their classification?

- Sources?
- Documentation?

TABLE 2
CLASSIFICATION OF WESTERN EUROPEAN RÉGIMES, RUSSELL-DE VRIES DATA BASE

Region	1050–1200	1200–1330	1330–1500	1500–1650	1650–1800
Southern Italy	Prince (Norman d'Haute- villes)	Prince (Hohenstaufens and Angevins)	Prince (Aragonese)	Prince (Habsburgs)	Prince (Habsburgs)
Northern Italy	Free (Investiture Struggle)	Free (Republics)	Free (Republics)	Prince (Habsburg domina- tion)	Prince (Habsburg domina- tion)
Austria-Bohemia	Free (feudal)	Free (constitution)	Free (constitution)	Prince (Habsburgs)	Prince (Habsburgs)
Germany	Prince (Medieval empire)	Prince (anarchy: Great Inter- regnum)	Prince (petty despots)	Prince (petty despots)	Prince (petty despots)
Netherlands	Free (feudal)	Free (constitution)	Free (constitution)	Free (Dutch republic)	Free (Dutch republic)
Belgium	Free (feudal)	Free (constitution)	Free (constitution)	Prince (Habsburgs)	Prince (Habsburgs)
England	Prince (Normans)	Prince (Angevin empire)	Prince (Wars of Roses)	Prince (Tudors)	Free (constitution)
France	Free (feudal)	Free (feudal)	Free (Hundred Years' War)	Free (religious strife)	Prince (Bourbons)
Spain	Free (feudal)	Free (constitution)	Free (constitution)	Prince (Habsburgs)	Prince (Bourbons)

From: DeLong and Shleifer, “Princes and Merchants”

Dependent Variable

- Main data: Russell-de Vries
 - 9 regions, 5 eras, so 45 observations
- Three variants:
 - Change in population in cities > 30K
 - Change in number of cities > 30K
 - Change in population in large cities/average large city population in region over time period.
- Evaluation?

Specification

- One of three dependent variables
- Regressed on a dummy for whether the regime was absolutist in a region in an era.
- Region controls (9 regions)
- Era controls (5 eras)

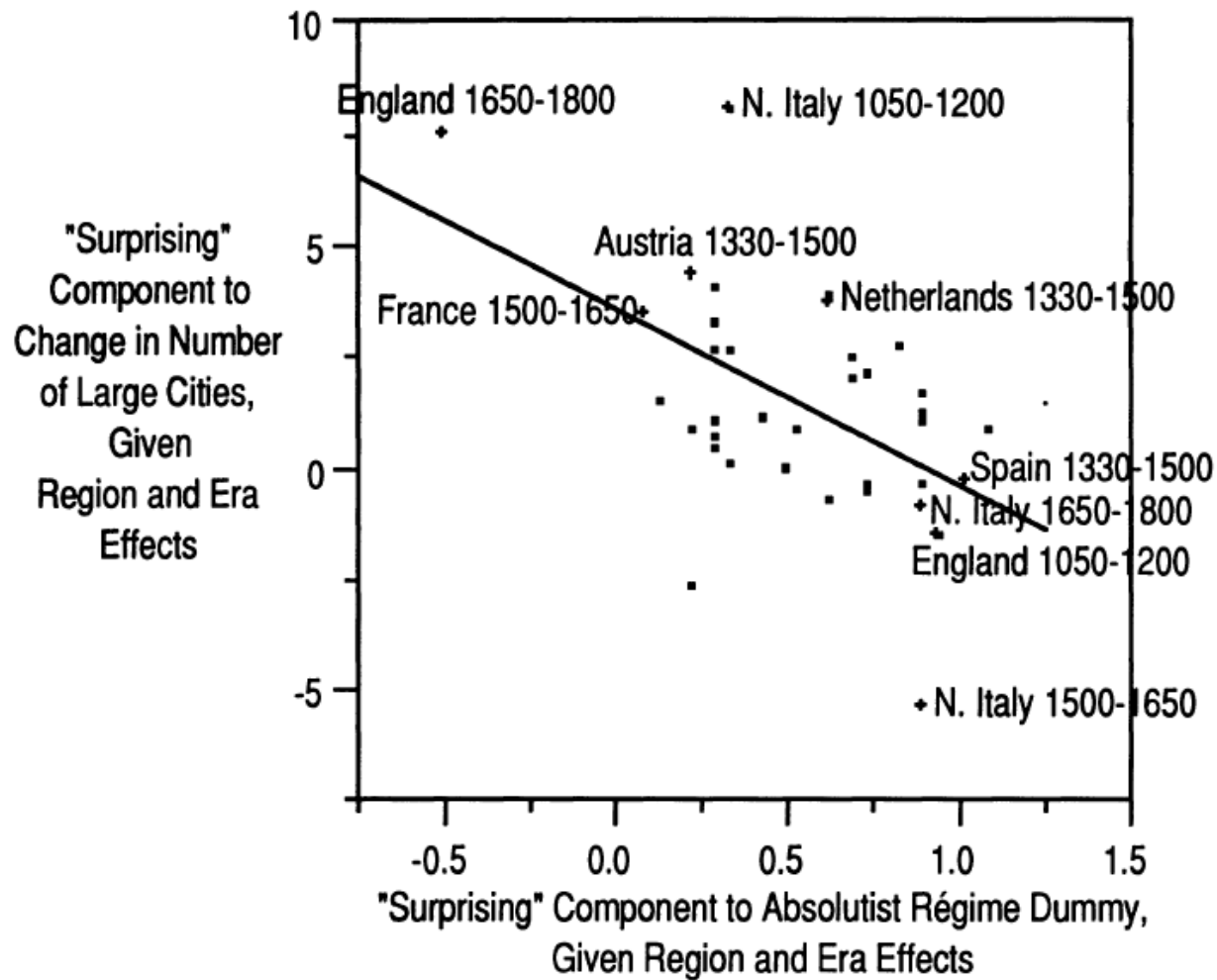


FIGURE 1.—Partial scatter of change in number of cities against absolutist regime

From: DeLong and Shleifer, "Princes and Merchants"

TABLE 3
REGRESSION RESULTS FOR THE RUSSELL-DE VRIES DATA BASE

Dependent Variable	Prince Coefficient (Thousands of People or Number of Cities Lost per Century of Absolutism)	R^2	SEE*	Region Controls?	Era Controls?
Growth in population of cities over 30,000	- 178.47 (48.53)	.70	156.70	Yes	Yes
Growth in population of cities over 30,000	- 79.65 (40.40)	.48	185.13	No	Yes
Growth in number of cities over 30,000	- 2.28 (.82)	.54	2.63	Yes	Yes
Growth in number of cities over 30,000	- 1.52 (.60)	.36	2.75	No	Yes
Proportional growth in population of cities over 30,000	- .30 (.24)	.49	.76	Yes	Yes
Proportional growth in population of cities over 30,000	- .15 (.16)	.37	.76	No	Yes

From: DeLong and Shleifer, "Princes and Merchants"

Focusing Only on Regions with Variation in Regime

TABLE 5

CITY POPULATION GROWTH (in Thousands) UNDER ABSOLUTIST AND NONABSOLUTIST RÉGIMES

Region	Average Growth under a Nonabsolutist Régime	Average Growth under an Absolutist Régime	Difference
Austria	-20	-110	90
Belgium	28	-222	250
England	695	41	654
France	124	226	-102
Spain	-72	-103	31
Northern Italy	123	-134	257

From: DeLong and Shleifer, "Princes and Merchants"

Using a Finer Classification of Regime

TABLE 6
FINELY GRADED CLASSIFICATION OF RÉGIMES, RUSSELL-DE VRIES DATA BASE

Region	1050–1200	1200–1330	1330–1500	1500–1650	1650–1800
Southern Italy	8	7	7	8	8
Northern Italy	3	3	3	8	8
Austria	5	4	7	8	8
Germany	4	4	5	5	5
Netherlands	3	2	2	1	1
Belgium	4	2	2	8	8
England	7	7	6	8	1
France	5	4	4	4	8
Spain	5	2	6	8	8

TABLE 8
REGRESSION RESULTS FOR THE RUSSELL-DE VRIES DATA BASE USING ALTERNATIVE CLASSIFICATION SCHEME: EFFECT OF A ONE-POINT SHIFT IN THE CLASSIFICATION SCALE

Dependent Variable	Coefficient on Régime Scale (Thousand People or Number of Cities Lost per Century)	R^2	SEE*	Region Controls?	Era Controls?
Growth in population of cities over 30,000 (Putnam)	-48.44 (13.71)	.70	106	Yes	Yes
Growth in number of cities over 30,000 (Putnam)	-.79 (.22)	.57	1.51	Yes	Yes

TABLE 9
ABSOLUTIST PRINCES AND CITY GROWTH, BAIROCH DATA BASE

Dependent Variable	Prince Coefficient (Thousands of People or Number of Cities per Century)	R^2	SEE*	Controlling for:
Growth in number of cities of more than 10,000 popu- lation	-5.802 (2.157)	.425	7.37	region, era effects
Growth in population living in cities of more than 10,000 population	-225.70 (53.34)	.434	182.29	region, era effects
Growth in number of cities of more than 30,000 popu- lation	-1.516 (.535)	.245	1.83	region, era effects
Growth in number of cities of more than 30,000 popu- lation	-.423 (.371)	.133	1.83	era effects only
Growth in population of cities of more than 30,000 population	-149.06 (38.08)	.322	130.11	region, era effects
Growth in population of cities of more than 30,000 population	-40.82 (28.08)	.125	138.23	era effects only
Growth in population of cities of more than 30,000—excluding royal capitals	-88.70 (28.24)	.227	96	region, era effects

From: DeLong and Shleifer, "Princes and Merchants"

Causation

- What are possible reverse causation stories?
- How do DeLong and Shleifer try to deal with this issue? Are they convincing?
- More general problem of omitted variable bias?

TABLE 10
THE ENGLISH SUCCESSION, 1066–1702

Dynasty and Monarch	Disputed Succession?	Reason
Godwin: Harold	✓	Harold overthrown by William the Bastard
Norman: William I “the Bastard” William II “the Red”	✓	William assassinated while hunting; an “accident”
Henry I	✓	Heir Maud displaced by her cousin, Stephen
Blois: Stephen	✓	Stephen displaced by Maud’s son, Henry II
Plantagenet: Henry II	✓	Dies fleeing the armies of his son, Richard
Richard I “the Lionhearted”	✓	Brother John bribes Austrians to imprison Richard
John “the Landless” Henry III Edward I		
Edward II	✓	Murdered by queen and her lover
Edward III Richard II	✓	Overthrown by his cousin, Henry IV
Lancaster: Henry IV Henry V Henry VI	✓	Overthrown by his cousin, Edward IV
York: Edward IV	✓	Throne usurped by his brother, Richard III
Richard III	✓	Overthrown by Henry VII
Tudor: Henry VII Henry VIII Edward VI	✓	Coup by Dudley faction on his death
Dudley: Lady Jane Grey	✓	Ten-day reign, then “Bloody” Mary gains power

From: DeLong and Shleifer, “Princes and Merchants”

III. JEREMIAH DITTMAR:

“INFORMATION TECHNOLOGY AND ECONOMIC CHANGE:
THE IMPACT OF THE PRINTING PRESS”

Dittmar's Thesis

The adoption of the printing press had large effects on European city growth over the period c. 1500–c. 1600.

Divergent Views about the Importance of the Printing Press

- An early “IT breakthrough” that was one of the most revolutionary changes in human history.
- A large but not enormous reduction in costs in a tiny piece of the economy, and so obviously unimportant.

Why Might “The Printing Press Was Obviously Unimportant” Be Wrong?

- In general: Externalities.
- Specifically: Dittmar argues, “cities that adopted print media benefited from localized spillovers in human capital accumulation, technological change, and forward and backward linkages” (emphasis added).

Consider the Following “Minimalist Paper”:
Explain the Hypothesis, Run OLS and IV
(Including the Many Variations and Robustness
Checks), End

What does the rest of the paper (e.g., Sections III, V.D, and V.F) add?

- Provides evidence of a substantial “as if random” component of adoption of the printing press.
- Provides evidence that large effects not implausible, despite the small size of the sector.

Dittmar's Test

Basic idea: Compare (especially over the period 1500–1600) population growth of cities that did and did not adopt the printing press before 1500.

E.g., for various time periods, estimate:

$$g_i = a + bT_i + c'X_i + e_i, \text{ where:}$$

i indexes cities,

g is the change in log population,

T is a dummy for pre-1500 printing press adoption,

X is a vector of other variables.

TABLE II
PRINT TECHNOLOGY AND LOG CITY GROWTH 1500–1600

(1)	Press Adopted 1450–1500			Press Not Adopted 1450–1500			(8)
	(2)	(3)	(4)	(5)	(6)	(7)	
20th-Century Polity	No. of Cities	Urban Pop. 1500	Weighted Average Growth	No. of Cities	Urban Pop. 1500	Weighted Average Growth	Print City Growth Advantage
Austria	1	20	0.92	7	43	−0.03	0.95
Belgium	8	202	−0.08	15	136	−0.27	0.19
Czechoslovakia	2	85	0.23	6	25	0.25	−0.02
Denmark	1	10	1.39	1	3	0.51	0.88
England	2	55	1.16	38	166	0.21	0.95
France	21	662	0.20	28	347	0.04	0.16
Germany	27	360	0.16	53	318	0.12	0.04
Italy	34	1,119	0.26	62	442	0.24	0.02
Netherlands	9	104	0.34	17	119	0.53	−0.19
Poland	3	77	0.60	14	96	0.08	0.52
Portugal	4	87	0.56	3	19	0.04	0.52
Spain	19	359	0.37	55	554	−0.15	0.51
Sweden	1	7	0.25	17	27	0.06	0.20
Switzerland	3	27	0.25	3	8	0.00	0.25
Totals	135	3,174	0.27	319	2,303	0.07	0.20

Notes. Urban populations are given in thousands. At the country level, weighted average growth (columns 4 and 7) is calculated using city populations in 1500 as the weights on log city growth. At the city level, log growth 1500–1600 is $\ln\left(\frac{POP_{1600}}{POP_{1500}}\right)$, where POP_t is city population in year t . The print growth advantage (column 8) is the difference between average growth for adopting and nonadopting cities (column 4 – column 7). Across all countries, total weighted average growth is calculated using urban populations in 1500 as the weights. Hungary is omitted because Buda was the lone Hungarian print city and the Bairoch data do not record Buda's population in 1600.

From: Dittmar, “The Impact of the Printing Press”

TABLE IV
REGRESSION ANALYSIS OF PRINT MEDIA AND LOG CITY GROWTH

(1)	Dependent Variable Is Log City Growth			
	Pre-Adoption	Post-Adoption		
	(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)
[...]				
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

From: Dittmar, “The Impact of the Printing Press”

Dittmar's Specifications versus "Difference in Differences"

- Dittmar:

$$g_i = a + bT_i + c'X_i + e_i.$$

- Difference in differences:

$$\Delta g_i = a + bT_i + c'X_i + e_i,$$

where Δg_i is post-1500 growth minus pre-1500 growth.

TABLE IV
REGRESSION ANALYSIS OF PRINT MEDIA AND LOG CITY GROWTH

(1)	Dependent Variable Is Log City Growth			
	Pre-Adoption	Post-Adoption		
	(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)
[...]				
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

From: Dittmar, “The Impact of the Printing Press”

Dittmar's Rule for What Cities Are in the Sample

- Bairoch et al. (1988) “identify the set of [European] cities that ever reached 5,000 inhabitants between 1000 and 1800 and then search for population data for these cities in all periods.”
- Table II “includes all cities for which population data are available.”

A Sample Selection Rule Based on Outcomes Should Make You Nervous

- Assuming no missing data: All cities that were large in 1500 would be in the sample, but cities that were small in 1500 would be in only if they grew fast enough.
- Could this bias Dittmar's results? If so, how?
- Most likely bias seems to be toward understating the coefficient.

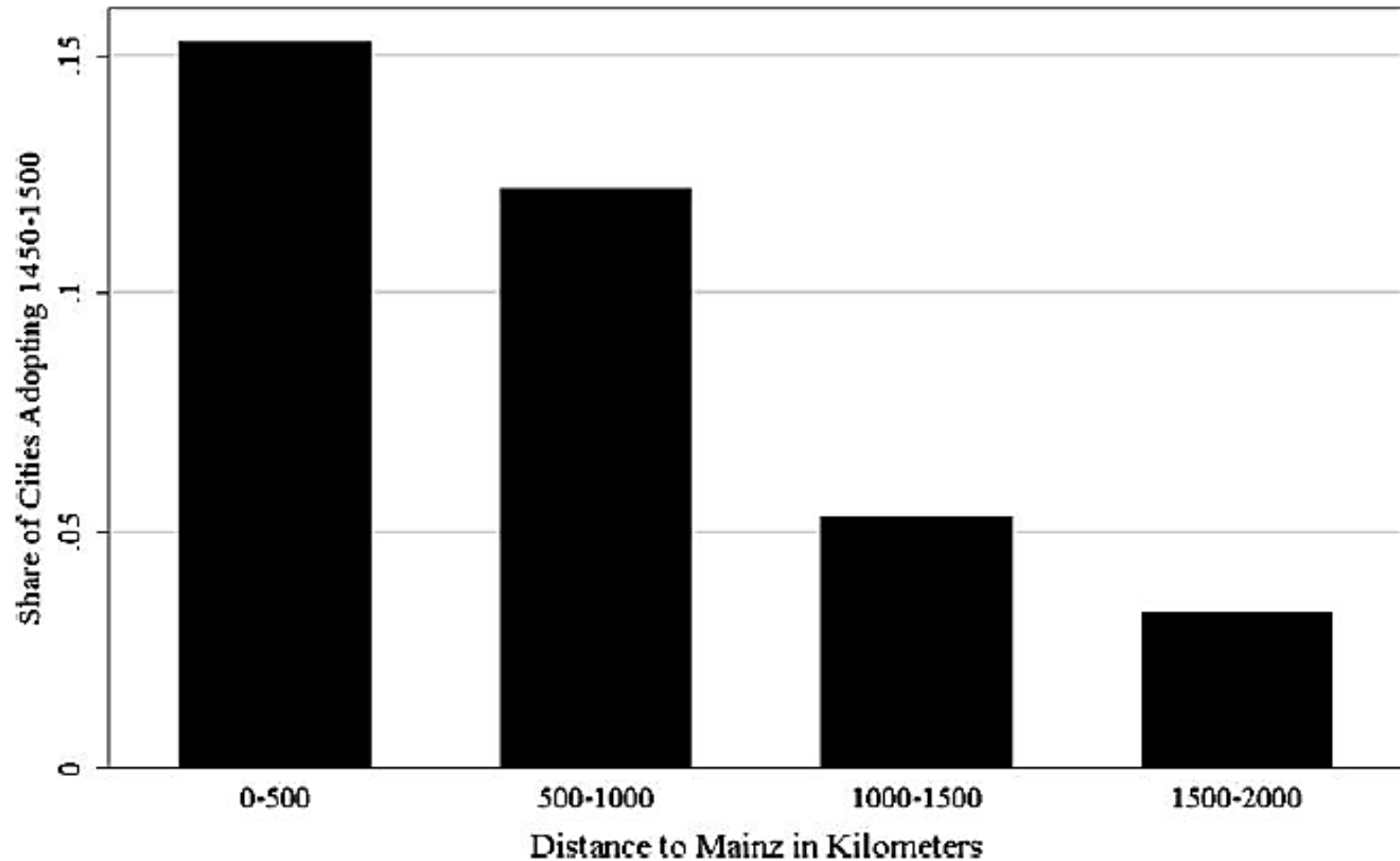


FIGURE IV

Distance from Mainz and Adoption of the Printing Press, 1450–1500

From: Dittmar, "The Impact of the Printing Press"

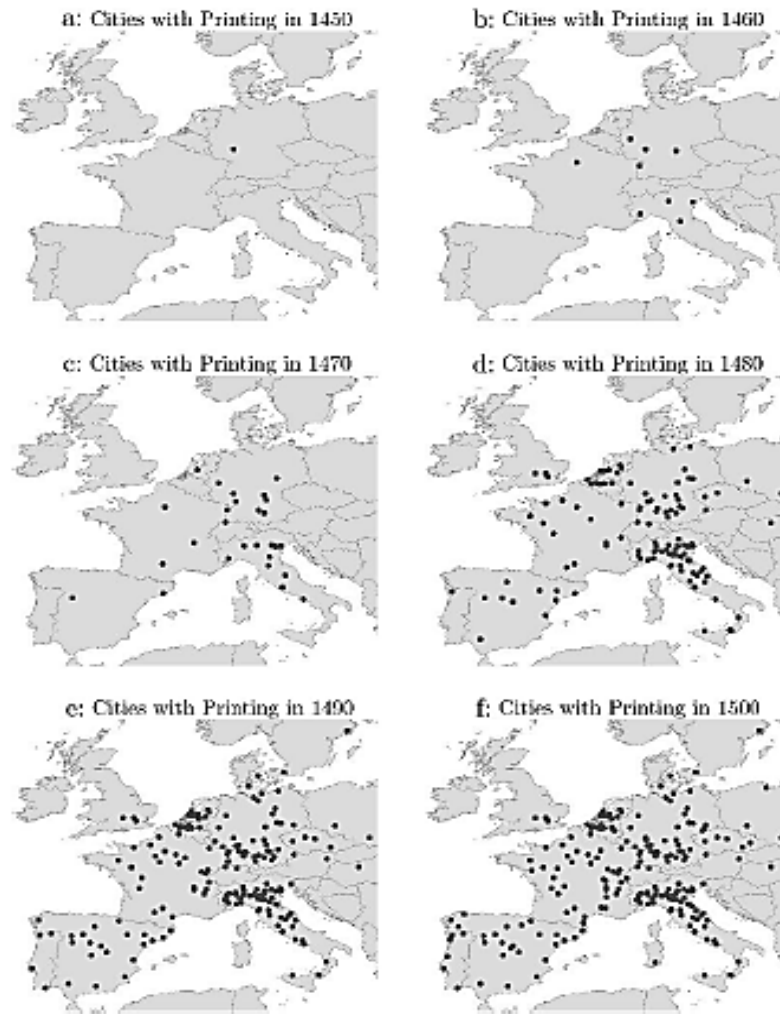


FIGURE III

The Diffusion of the Movable Type Printing Press

From: Dittmar, "The Impact of the Printing Press"

TABLE VI
DISTANCE FROM MAINZ AND ECONOMIC OUTCOMES BEFORE AND AFTER
GUTENBERG

(1)	(2)	(3)	(4)	(5)
Regression Model	Log Growth 1400–1500	University in 1450	Log Size in 1500	Log Growth 1500–1600
Log Distance to Mainz	-0.05 (0.04)	0.00 (0.01)	-0.11 (0.08)	-0.03*** (0.01)
Observations	269	410	410	410
<i>R</i> Squared	0.23	0.12	0.31	0.22

Note. The dependent variable in column (2) is log city growth 1400–1500: $\ln\left(\frac{POP_{1500}}{POP_{1400}}\right)$. The dependent variable in column (3) is an indicator variable recording the presence of a historic university in 1450. The dependent variable in column (4) is log city population in 1500: $\ln(POP_{1500})$. The dependent variable in column (5) is log city growth 1500–1600: $\ln\left(\frac{POP_{1600}}{POP_{1500}}\right)$. Controls include city latitude, longitude, the interaction between latitude and longitude; the DeLong-Shleifer index of institutions; indicators for sea ports, navigable rivers, capitals, and cities on Roman sites; and log city population. (Log population is not a control for the regression reported in column 4.) 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 99% confidence level is indicated by ***.

From: Dittmar, “The Impact of the Printing Press”

TABLE VII
INSTRUMENTAL VARIABLE ANALYSIS OF PRINTING AND LOG CITY GROWTH

(1)	(2)	(3)
Regression Model	1st Stage Adopt Print 1450–1500	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
<i>R</i> squared	0.34	0.15
<i>F</i> 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 ***

From: Dittmar, “The Impact of the Printing Press”

Why Might the IV Estimates Be So Much Bigger Than the OLS Estimates?

- OLS is biased down.
- IV is biased up.
- Sampling error.

IV. JAN DE VRIES:

“THE INDUSTRIAL REVOLUTION AND THE INDUSTRIOUS
REVOLUTION”

de Vries's Thesis

- “In England, but in fact through much of Northwestern Europe and Colonial America, a broad range of households made decisions that increased *both* the supply of marketed commodities and labor *and* the demand for goods offered in the marketplace” (p. 255).
- Time period: “in the century before the Industrial Revolution could occur” (p. 255), or “from the mid-seventeenth century into the nineteenth” (p. 257).

A Little on de Vries's Framework (based on Becker, 1965)

- $U = U(Z, T, H)$, where:
 - Z is a vector of “commodities,”
 - T is a vector of nonmarket uses of time,
 - H is time working in the market.
- A given Z can be produced in more or less H -intensive ways.
- Some Z 's are more H -intensive than others.

de Vries's Thesis Restated

- Technology and prices changed in ways that made the utility-maximizing bundle more *H*-intensive.

and

- Tastes changed in ways that made the utility-maximizing bundle more *H*-intensive.

de Vries's Key Facts

- Real wages were not rising.

But:

- Per capita GDP was rising, and people had more possessions.

de Vries's Additional Evidence

- Direct facts about labor supply. (“[P]easant households concentrating their labor in marketed food production, ... cottar households directing underemployed labor to protoindustrial production, ... the more extensive market-oriented labor of women and children, and ... the pace or intensity of work.”)
- Evidence from “novels, diaries, and essays.”
- Evidence of increased “social ills” from “the intensification of work and suppression of leisure.”

Subsequent Evidence on Real Wages

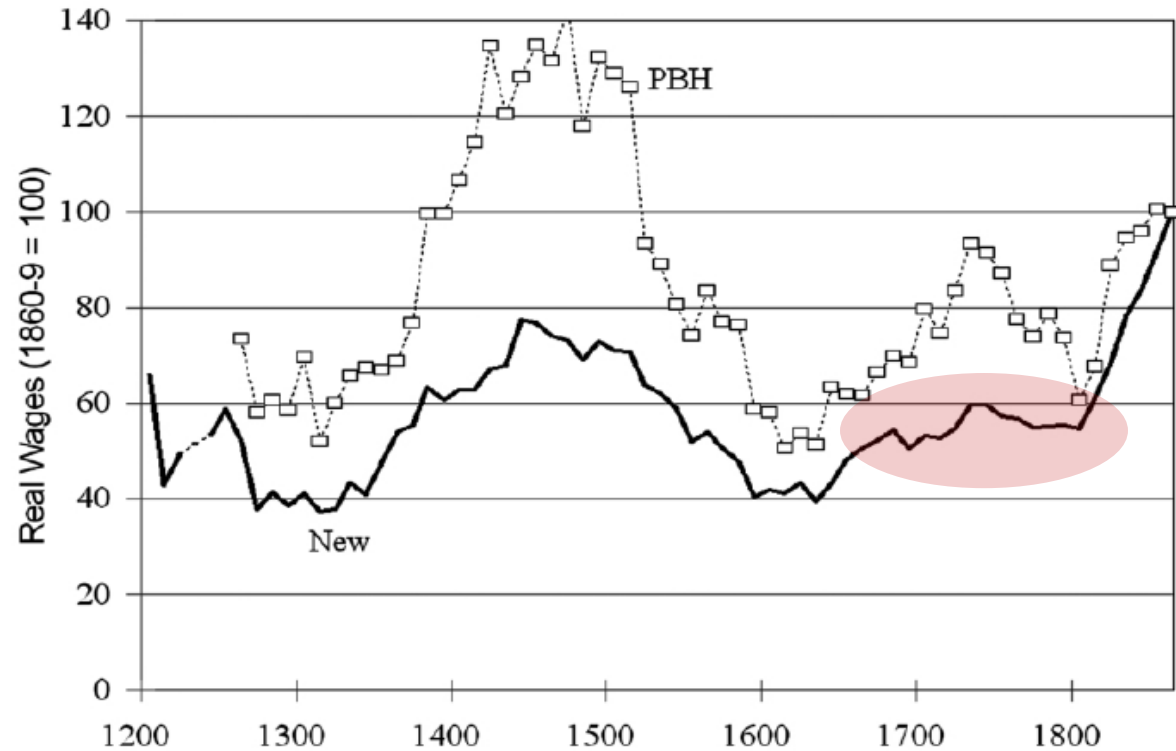
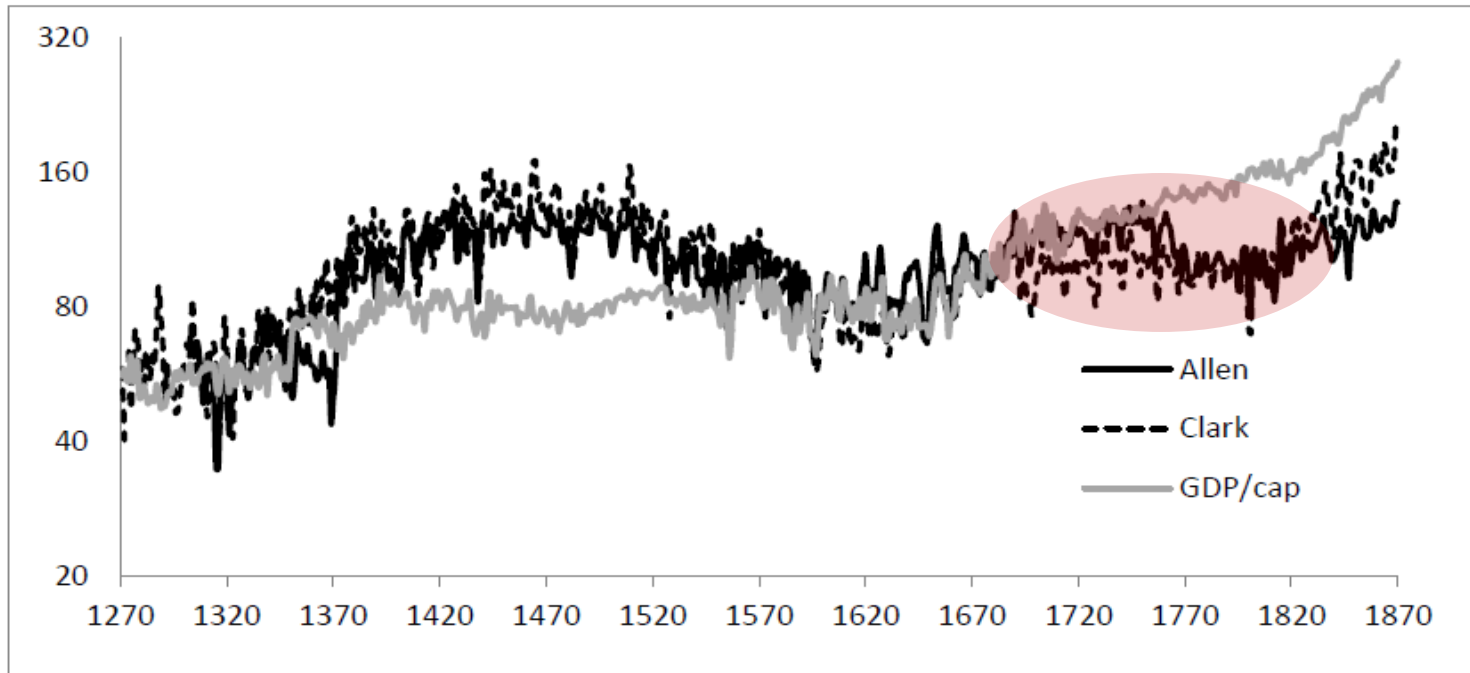


FIG. 4.—Real wages, 1200–1869, Phelps Brown and Hopkins vs. new series. In both series, 1860–69 has been set to 100. Sources: Phelps Brown and Hopkins (1981, 28–31), table A2.

From Clark, “The Condition of the Working Class in England, 1209–2004”

Subsequent Evidence on Real GDP per Capita

FIGURE 5: Indexed daily real wage rates of unskilled building workers and GDP per capita, (log scale, mean of 1270-1870 = 100)



Sources and notes: Clark (2005); Allen (2001); see Table 10.

From Broadberry, Campbell, Klein, Overton, and van Leeuwen, “British Economic Growth, 1270-1870: An Output-Based Approach” (2011)

Subsequent Evidence on Days of Work

TABLE 12: Estimates of annual days worked per person

Period	Blanchard/Allen and Weisdorf	Clark and van der Werf	Voth
1433	165		
1536	180		
1560-1599		257	
1578	260		
1584	210		
1598	259		
1600-1649		266	
1650-1699		276	
1685		312	
1700-1732		286	
1733-1736		295	
1760			258
1771		280	
1800			333
1830			336
1867-1869		293-311	
1870		318	

Sources and notes: 1433-1598: derived by Allen and Weisdorf (2011: 721) from Blanchard (1978: 24) as the number of days worked in agriculture (135) plus the share of the remaining 130 workdays spent in mining; 1560-1599 to 1870: Clark and van der Werf (1998: 838); 1760-1830: Voth (2001: 1078).

From Broadberry, Campbell, Klein, Overton, and van Leeuwen, “British Economic Growth, 1270-1870: An Output-Based Approach” (2011)

Final Questions

- What other evidence could one consider or try to obtain?
- What did you think?