The Little Divergence and the Birth of the first Modern Economy, or when and why did northwestern Europe become much richer than southern and eastern Europe.

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In recent years economic historians have been debating the 'Great Divergence,' or when and how Western European economic growth increased relative to that of advanced economic regions in China and Japan. Their focus was originally on the classic period of the industrial revolution in Europe, *c*. 1750-1850. More recently, evidence has mounted that the divergence of economic growth between Europe and Asia occurred during the early modern period, well before the industrial revolution of the late 18th century. Moreover, recent research has also shown that the acceleration of economic growth did not take place in all of Europe but was concentrated in northwestern Europe, especially around the North Sea. Jan Luiten van Zanden called this "the Little Divergence."[1] The debate on when and why northwestern European economic growth diverged from the rest of Europe is rooted in another debate about where was the "first modern economy"? According to van Zanden, "before 1800, economic dynamism. . . fuelled an increase of population, although in some regions—for example, in Sung China, during the Roman Empire, in the Middle East from 800 to 1100, or in medieval Italy—there may have been an increase in GDP per capita which was substantial and semi-permanent. Before 1800, such growth generally petered out in a few generations"[2] In short, before 1800, economic change did not produce the cumulative growth characteristics of the 19th and 20th centuries. The idea of "modern economic growth" was introduced by Simon Kuznets in 1966 as a "sustained increase in per capita income combined with structural change." It has long been argued that modern economic growth was the outcome of the industrialization process, which began in England during the second half of the eighteenth century and spread to Western Europe and North America during the first half of the nineteenth century.

During the 1980s and 1990s economic historians demonstrated that the industrial revolution was not a sudden event that sprung up in England during the late 18th century, but that there had been a long-term acceleration of change over a much larger period that prepared the ground for the

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[1] Jan Luiten van Zanden, *The Long Road to the Industrial Revolution: The European Economy in a Global Perspective, 1000-1800* (2009).
[2] Van Zanden, (2009), p. 1.

industrial revolution. Historians pointed to early modern economic developments that promoted economic growth, such as "proto-industrialization," in which capitalists organized workers in rural districts to produce goods for a wide market; the role of London and other urban centers as engines of growth; changes in consumption patterns, such as new overseas products--that convinced households to expand their labor output—a process that de Vries has called "the industrious revolution;"[3] and that many of the institutional pre-conditions for the industrial revolution, such as security of property, representative institutions, efficient systems of taxation and government debt management, affective national banks and the willingness of governments to protect and expand the trading routes of merchants with military force all came well before industrialization. Early modern economic historians pointed to the role of urbanization between 1500 and 1800, the development of long distance overseas trade and finance, and improvements in agriculture as evidence of a growing economy during the period. The early modernists produced a "new orthodoxy that Western Europe, and in particular the region bordering the North Sea, was already different long before the industrial revolution, i.e. more dynamic, competitive, and creative than the rest of the world."[4] In 1997, Jan de Vries and Ad van der Woude published their influential study that argued that the Dutch Republic was the "first modern economy."[5] In a summary of their argument, de Vries noted that during the early modern period in the Netherlands there was widespread capital investment in technological improvements that acted to counteract the diminishing returns available in resource based sectors, such as its highly productive, innovative and efficient agriculture. The Dutch economy used its resources efficiently and invested in domestic and foreign trade, specialized manufacturing, and a thriving financial system. It managed to re-center the European economy around Amsterdam as its entrepôt, which served as a generator of increasing returns to scale for its commercial and industrial sectors. "Taken together, these factors created an economy capable of unreversed growth. It was certainly not the first example of impressive commercial, industrial and agricultural progress in a

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[3] Jan de Vries, *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present* (2008).

[4] Van Zanden, *The Long Road to the Industrial Revolution,* (2009), p. 4. See especially, Eric Jones, *The European Miracle: Environments, Economies and Geopolitics in the History of Europe and Asia* (1987); David Landes, *The Wealth and Poverty of Nations* (1998); and Angus Maddison, *The World Economy: a Millennial Perspective*(2001).

[5] Jan de Vries and Ad van der Woude, *The First Modern Economy: Success, Failure and Perseverance of the Dutch Economy, 1500-1815* (1997).

regional setting. Northern Italy and the Southern Netherlands had, of course, also achieved progress of this type, but the scale and the continuity of the Dutch experience represented a difference of degree that emerged to become a difference of type."[6] De Vries and van der Woude challenged the notion that modern economic growth began with an industrial revolution since the Netherlands did not experience an industrial revolution until well into the 19th century. Although the Dutch economy stagnated in the 18th century, the standard of living in the Netherlands remained second only to that of Britain in the early 19th century before industrialization, which did not take place there until well into the 19th century, and today its standard of living is higher than that of Britain.

If at the beginning of the 16th century Holland employed only one-quarter of its population in agriculture as studies have suggested, when did the economic transformation of northwestern Europe begin? Van Zanden argues that the roots of modern economic growth in Europe are to be found in the middle ages: "I conclude that that in many respects the medieval period was more dynamic than the three centuries from 1500 to 1800. During the major boom from 900 to 1300, growth occurred on a pan-European scale, with strong population growth and long term increased in real capital income per capita going hand in hand. From 1500 to 1800, on the other hand, growth was restricted to the North Sea region--to Flanders in the sixteenth century, the Netherlands during its Golden Age, and England (and Scotland) in the period after about 1610—while per capita income in the rest of Europe was static at best."[7] Van Zanden argues that the "little divergence" took place around the North Sea in the early modern period, but that its roots are to be found in the more general European growth of the high middle ages.

Van Zanden not only set out to document the European divergences but to explain why it happened. An earlier generation of economic growth theorists tended to explain long-term economic growth in terms of the accumulation of capital and technological innovation (economists call this 'exogenous' growth, or having its origins externally). More recently, new economic growth theories have been developed, which focus on why, where and when human capital formation (investing in the skills of humans) and the accumulation of knowledge began to

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[6] Jan de Vries, "Dutch Economic Growth in Comparative-Historical Perspective, 1500-2000", *De Economist*, 148, (No. 4, 2000): 452.
[7] Van Zanden, *The Long Road to the Industrial Revolution,* (2009), p. 5

increase before the industrial revolution (these are called endogenous theories, or growth from within). One of the most important ways to explain early endogenous growth has been through the study of demographic patterns. Historical demography makes the assumption that parents had a choice of how many children they had and about how much capital they would invest in developing the skills of their children. Van Zanden argues that an important divergence in demographic patterns occurred in the North Sea region. This divergence has been linked to the European Marriage Pattern, EMP, which developed after the arrival in the late 14th century after the plague, or Black Death, in Western Europe. This demographic pattern consisted of relatively late marriages, the setting up of separate households by the newly married, relatively less subordination for women within an overall patriarchal family, and a greater participation of women in the labor force.

Van Zanden illustrates the EMP with a story about what he calls "girl power." In 1505, Janne Heyndericx, a 31 year old woman in Kouwenkerke, Zeeland, told a committee of inquiry on the malpractices of a local magistrate, that eight years ago she promised to marry a young man, Adriaen Jacobsz.. They slept together and continued to do so, without ever officially marrying as was required by the law of the Church, and they postponed marriage to a more convenient time. Since she still lived with her mother and stepfather, who refused to maintain her, she was forced to find employment elsewhere and went to Kouwenkerke to earn a living. She found work there and lived with another young man with whom she had a child. Four or five years before the hearing, Adriaen tried to be released from his promise to marry her, although they still saw each other regularly and slept together. She still wanted to marry him because, although they had not been married in the Church, she believed they were indeed married before God. Moreover, she explained that it was Adriaen's fault that she had a child by another man because he had kept her waiting so long. Van Zanden explains that this is a strikingly modern story, which was not uncommon for the North Sea region in the late Middle Ages, although unthinkable in most other parts of the world at the time. What made he EMP modern was that the decision to marry was taken by the two partners, and not the parents, and that they considered themselves married before God. Her parents refused to support her because God's eyes they

were married and thus the young couple should have set up their own household. She actually did just that and found employment elsewhere.

Historians see European households as a co-operative economic unit aimed at fulfilling the physical and social needs of its members and they were characterized by inequalities of gender and generation.[8] Households were based on explicit and implicit contracts of mutual obligation. In the EMP, women had a relatively large say in marriage because marriage was based on the consent of both spouses. According to van Zanden, the EPM encouraged relatively late marriages, for it expected the couple to set up their own household and was well suited to a region with "expanding employment opportunities and relatively high wages in the century after the Black Death. . . It was a reproductive strategy developed by wage earners-both male and female-and it was embedded in a larger institutional framework in which market exchange and trust in the functioning of the market were of fundamental importance."[9] To survive in a market society, in which 30 to 40 per cent of the population was partly or completely dependent on the wages of men, women and children, people developed a strategy to invest in schooling, apprenticeships, and training as servants in other households. They also invested in social capital to ameliorate the problems of old age, single parenthood, and orphans. Van Zanden argues that this pattern emerged in the region around the North Sea during the late middle Ages. Even though there seems to have been a resurgence of parental authority and a decline in the participation of women in the wage labor pool, particularly in skilled trades, during the 16th century, he contends that the overall EMP pattern was by then well established in Western Europe, and especially in its most prosperous part around the North Sea.

The problem for historians is how to find evidence for the 'Little Divergence" during the medieval period for which few demographic and price statistics are available. Van Zanden sought to solve this problem by providing new sets of statistical data that show the development of European investment in human capital. On the assumption that a high standard of living depends on skilled workers, he documents, in cooperation with a team of historians, the development of a European 'knowledge economy' with statistical evidence that shows the

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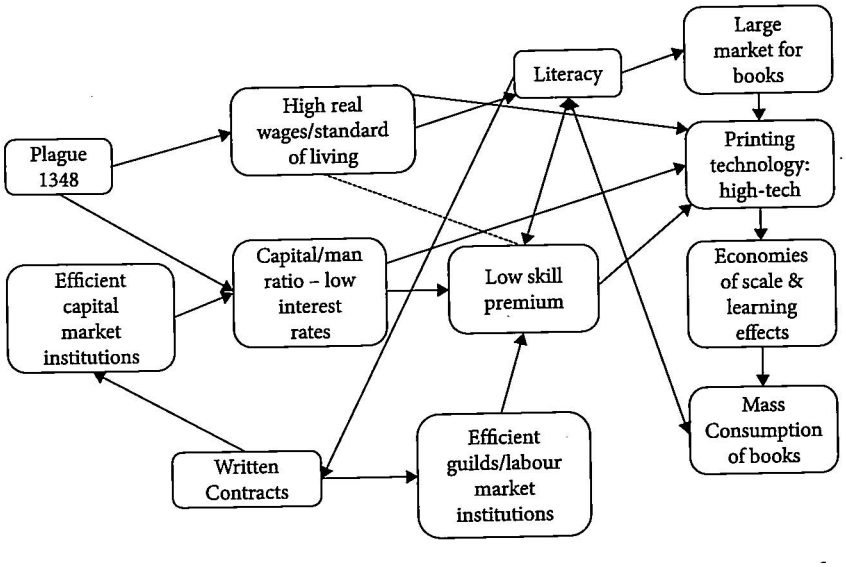
[8] See the seminal and readable study by Peter Laslett, *The World We Have Lost-Further Explored* (2004).

[9] Van Zanden, *The Long Road to the Industrial Revolution,* p. 104.

growth of manuscript and book publishing during the medieval period from the Carolingian period to the Renaissance, well before the invention of the printing press. Indices of education and literacy begin to show a divergence between the North Sea region and the rest of Europe from about 1400. The increase in book production was much higher than the rates of economic growth. The relative cost of book production declined even before the printing press. Books were luxury goods and urbanization meant that more of the population could buy books and participate in the knowledge economy.

Causes of the high level of human capital formation in Early Modern Europe



Source: van Zanden, *The Long Road to the Industrial Revolution*, p. 148

The fact that wage levels in the North Sea region were also significantly higher than in the rest of Europe from the 15th century provides further evidence of greater investment in human capital during this period in the this region. Robert Allen's influential work on the Great Divergence argues that the first industrial revolution occurred in northwestern Europe because its high wages during the early modern period encouraged technological innovation. Although high wages were initially a consequence of the demographic disaster of the Black Death, they were reinforced during the early modern period by the economic success of the region around the North Sea, first, in European trade and manufacturing, especially in wresting the textile industry from the Italians, and then in world trade. According to Allen, the first industrial revolution took

place in Britain instead of the Low Countries primarily because of Britain's abundant and cheap coal resources, combined with the central government's ability to use mercantilist policies and naval power to reap the greatest benefits from an expanding European and world trade. Once it had taken the lead from the Dutch, and defeated the French, Britain used its comparative advantage to consolidate its dominant position through free trade until the late Victorian period when its technological innovations spread to its competitors. [10]

Van Zanden takes a longer and more institutional view. He contends that Europe's restructuring after the collapse of the Roman Empire brought about a long period of local government that ultimately saw the re-emergence of relatively weak states and a feudal and manorial economy. Feudalism established a localized political order based on the exploitation of the peasantry but could not create powerful central states. The Church, and especially monasticism, promoted the development of a respect for learning, law and economic innovation but it was not until trade, especially in luxuries, saw the development of cities and a more general pattern of economic growth after about 1100. Economic growth was especially robust in areas where various corporate bodies and shared governance were developed, as in parts of Germany, Italy and the Low Countries. During the 12th and 13th centuries, economic growth was no longer driven by the exploitation of the peasantry as commercialization of agriculture and population growth saw the decline of manors and the disappearance of serfdom. Europe had become "relatively democratic, literate with a dense socio-political infrastructure (including high levels of social capital), where people (often) obeyed the (written) law, and possessed relatively efficient methods for developing and adapting new and old institutions (such as guilds, universities, communes, citizenship, law courts, councils, meetings and parliaments, charters and privileges, markets and fairs). It became, in short, a continent on the road to modern economic growth."[11] Van Zanden developed indices of relatively greater citizen participation in government in the North Sea area than in the rest of Europe. This greater participation in government can be seen in the successful revolt of the Netherlands, the creation of the Dutch Republic, the English Revolution, and the establishment of a balance of power between the Crown and Parliament in England after 1688. According to van Zanden, it was in these two

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[10] Robert C. Allen, *The British Industrial Revolution in a Global Perspective* (2009). See also his "Why the industrial revolution was British: commerce, induced invention, and the scientific revolution," *Economic History Review* 64 (No. 2, 2011): 357-384.
[11] Van Zanden, *The Long Road to the Industrial Revolution,* (2009), p. 68.

countries in which political and economic institutions were developed that produced greater economic efficiency, which in turn allowed them to win the greatest economic benefits from the creation of a world-wide trade network and reap the economic dividends from the immense resources of the Western Hemisphere. Greater participation in government also allowed the Dutch Republic and Britain to collect more taxes from its citizens and to use this revenue to protect its territories from absolutist states, such as Spain and France, and to wage war to expand its mercantilist economies.[12] Combining these long-term developments with such other crucial factors, as Britain's greater size, and its convenient coal resources allowed Britain to take the lead from the Dutch Republic in the 18th century and to achieve the first industrial revolution.

Van Zanden approvingly quotes Robert Lucas, an important economic growth theorist: "For income growth to occur in a society, a large fraction of people must experience changes in the possible lives they imagine for themselves and their children, and these new visions of a possible futures must have enough force to lead them to change the way they behave, the number of children they have, and the hopes they invest in these children: the way they allocate their time. In other words…economic development requires *a million mutinies*."[13] Van Zanden's work constitutes an important statement in the debate about the long-term origin of the industrial revolution, which, van Zanden argues, was rooted in a 'million mutinies' of ordinary people: "The long term trajectory of economic change in large areas of Western Europe, characterized by a sudden expansion in the Middle Ages and followed by a long period of stability, if not stagnation 'at a high level,' was not very different from the path of economic development followed by China and the Middle East in the same period, although the peak of their performance may well have predated that of Western Europe. It was the North Sea region that continued to expand during the early modern period, and this made the difference between Western Europe and the rest of Eurasia; the 'Little Divergence giving rise to the 'Great Divergence'."[14] The conclusions of economic historians, such as Allen and van Zanden, re based on sophisticated economic models and empirical statistical data, some of which is summarized in the tables and figures below.

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[12] See also Patrick O'Brien, "The nature and historical evolution of the exceptional fiscal state and its possible significance for the precocious commercialization and industrialization of the British economy from Cromwell to Nelson," *Economic History Review*, 64, 2 (2011): 408-446.
[13] Van Zanden, *The Long Road to the Industrial Revolution,* (2009), frontis piece.
[14] Van Zanden, *The Long Road to the Industrial Revolution,* (2009), p. 298

Estimates of urbanization ratio (the portion of the population living in cities with more than 10,000 inhabitants), the 6th to 15th centuries

Century	6	7	8	9	10	11	12	13	14	15	1500
Bohemia			0.0	0.0	0.0	0.6	0.9	2.0	4.3	5.9	**1.7***
British isles			0.0	0.4	2.4	3.1	2.2	2.2	2.5	2.1	**2.0**
France		0.5	2.1	2.9	3.6	4.9	5.7	5.5	6.1	6.7	**4.2**
Belgium			0.0	0.0	3.0	9.9	12.5	15.0	26.2	29.6	**21.1**
Netherlands			0.0	0.0	0.0	1.0	2.2	4.1	4.7	10.4	**15.8**
Germany		0.9	2.5	3.5	4.8	5.8	5.3	4.7	5.0	5.0	**3.2**
Switzerland			0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.4	**1.5**
Austria			0.0	0.0	0.0	0.0	0.5	1.0	1.3	1.3	**1.7***
Italy	3	1.8	3.0	4.3	9.9	14.3	13.0	13.2	13.6	13.1	**12.4**
Iberia**			0.0/4.5	0.6/10.0	2.4/13.5	3.5/16.4	3.2/13.2	5.6/36.2	7.6/23.3	9.6/13.8	**5.7**
European average**		0.6	1.8	3.5	4.8	5.4	5.6	6.1	6.7	6.9	**5.6**

*Austria and Bohemia are included together

**Iberia: first figure for Christian part only

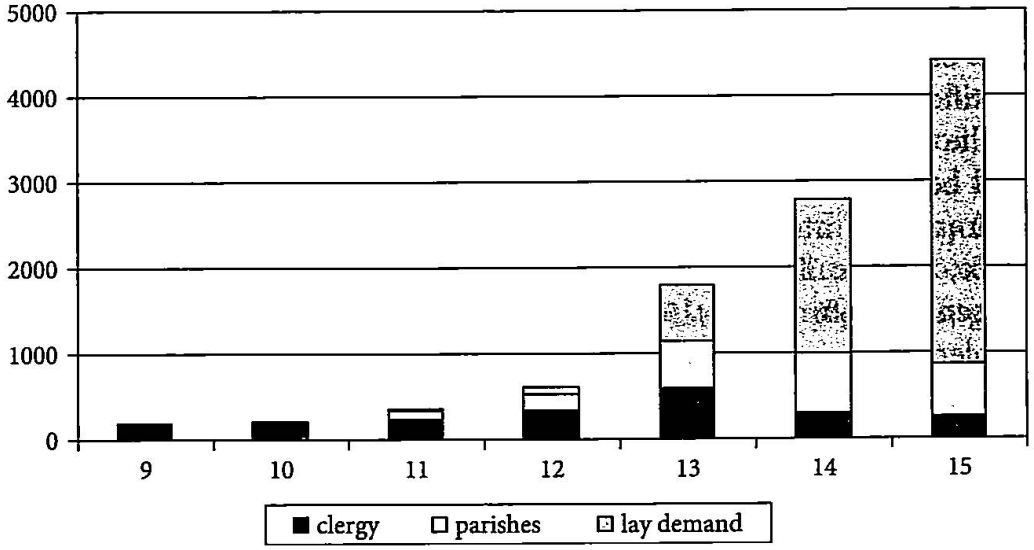
Source: van Zanden, *The Long Road to the Industrial Revolution*, p. 40

Per capita production of manuscript books per annum (per million inhabitants), 6th to 15th centuries

	6	7	8	9	10	11	12	13	14	15
Central Europe	0.0	0.0	0.0	0.0	0.0	10.8	72.4	186.1	443.9	509.0
Bohemia	0.0	0.0	0.0	0.0	0.0	8.2	10.3	35.8	247.4	283.5
British Isles	0.9	11.4	54.7	61.0	54.4	88.5	270.1	466.6	370.3	485.4
France	3.5	5.1	32.5	142.7	22.0	62.6	217.4	384.1	418.2	919.8
Belgium	0.0	4.2	37.0	101.0	38.9	170.6	540.2	1087.2	1061.5	5721.2
Netherlands	0.0	1.3	3.0	4.1	1.9	8.9	34.6	29.5	188.3	2149.7
Germany	0.0	0.0	23.4	181.1	134.4	130.4	333.8	360.5	376.7	660.4
Switzerland	0.0	1.0	19.8	177.7	60.0	27.3	47.1	54.6	90.7	152.2
Austria	0.0	0.0	54.7	156.9	0.0	35.1	339.7	233.8	248.6	553.9
Italy	25.5	12.4	17.2	47.2	31.7	71.8	146.5	294.2	1034.5	1674.9
Iberia	3.7	6.4	9.7	51.7	110.8	83.4	193.9	312.9	453.0	550.0
Western Europe	6.5	5.3	20.9	88.1	52.6	70.2	206.1	330.0	507.8	929.2
Coefficient of variation	2.37	1.56	0.83	0.81	1.06	0.80	0.77	0.90	0.67	1.23

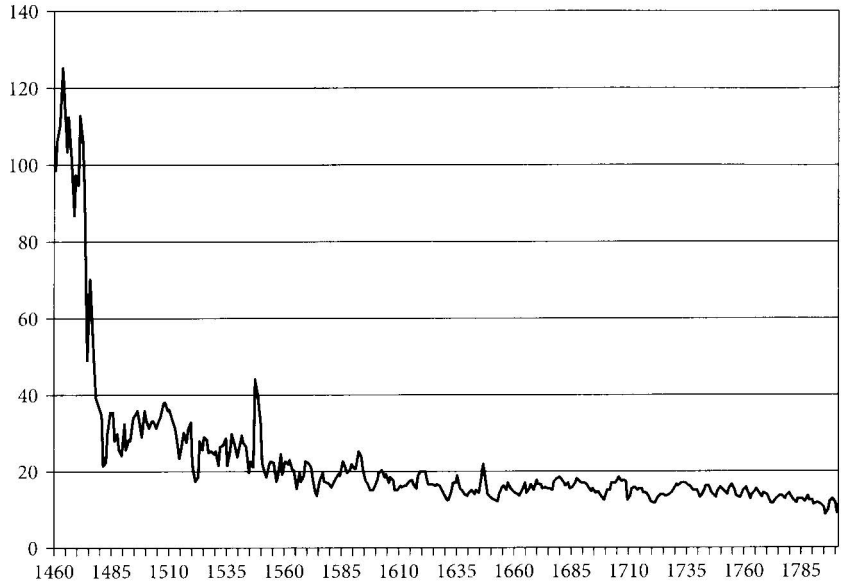
Source: van Zanden, *The Long Road to the Industrial Revolution*, p. 81

Demand for books in Europe, 9th to the 15th centuries



Source: van Zanden, *The Long Road to the Industrial Revolution*, p. 85

Estimates of the real price of Dutch books, 1460-1800 (1460/74 = 100)



Source: van Zanden, *The Long Road to the Industrial Revolution*, p. 183

Adult Literacy in Europe, 1500-1800

	Proportion of the adult population that could sign its name	
	1500	1800
England	0.06	0.53
Netherlands	0.10	0.68
Belgium	0.10	0.49
Germany	0.06	0.35
France	0.07	0.37
Austria/Hungary	0.06	0.21
Poland	0.06	0.21
Italy	0.09	0.22
Spain	0.09	0.20

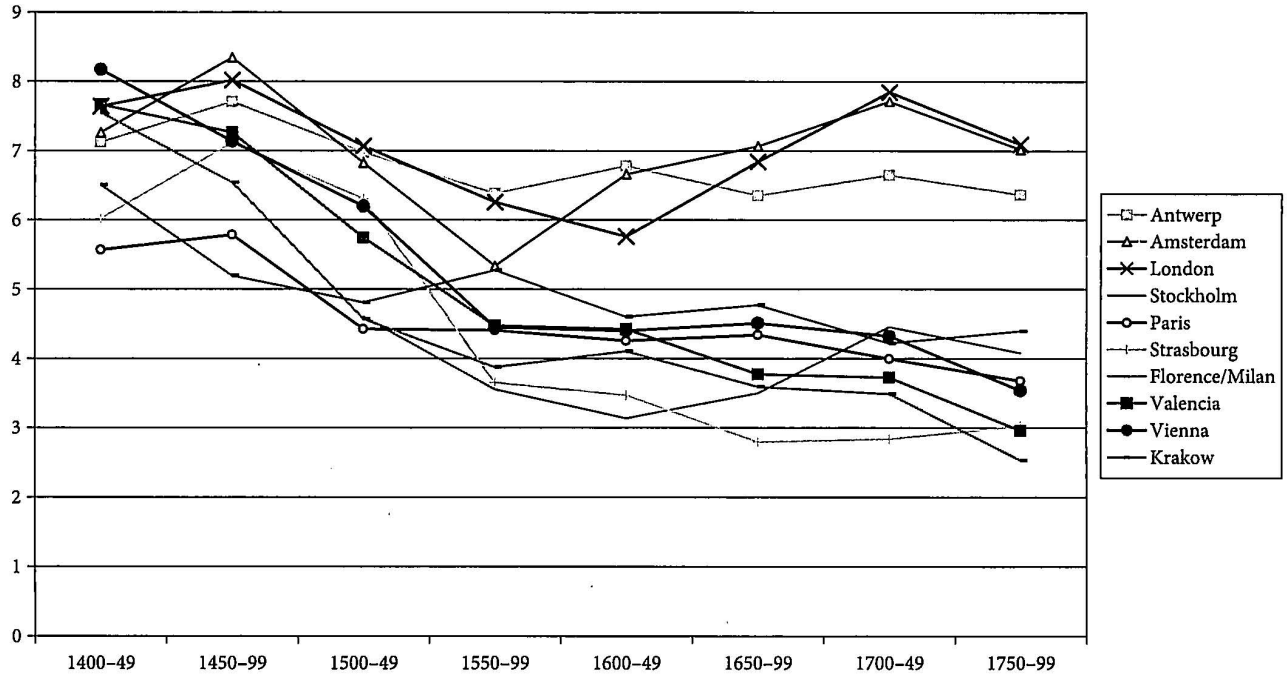
Source, Allen, *The British Industrial Revolution in a Global Perspective*, p. 53.

Estimates of the rate of literacy compared with Robert Allen's estimates, 1451/1500 – 1701/1800

	Allen 1500	1451–1500	1501–1600	1601–1700	1701–1800	**Allen 1800**
Great Britain	6	5	16	53	54	53
Ireland	–	0	0	3	21	–
France	7	6	19	29	29	37
Belgium	10	10	17	25	13	49
Netherlands	10	17	12	53	85	68
Germany	6	9	16	31	38	35
Italy	9	15	18	23	23	22
Spain	9	3	4	5	8	20
Sweden	–	1	1	23	48	–
Poland	6	0	0	3	5	21
Western Europe	–	9	16	25	31	–

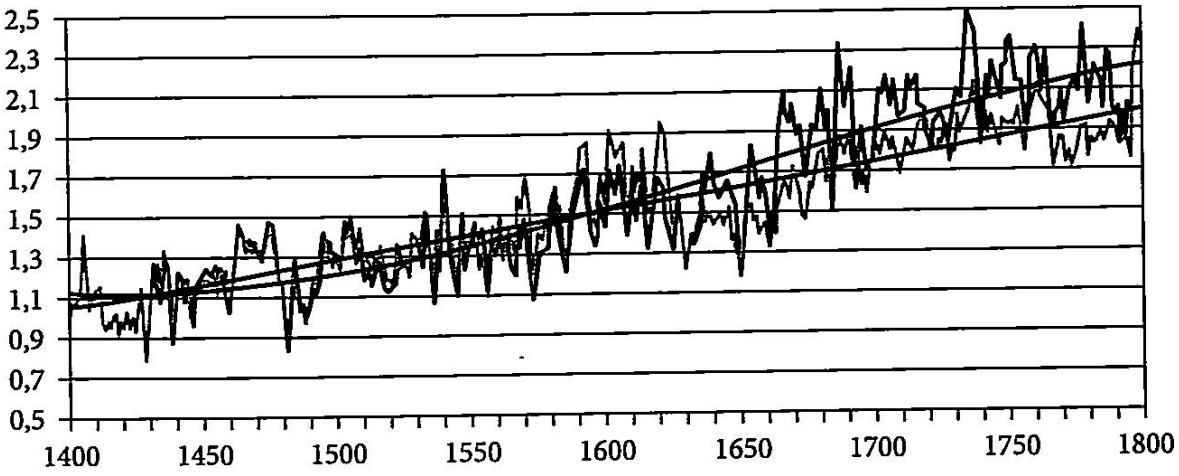
Source: van Zanden, *The Long Road to the Industrial Revolution*, p. 193

Estimates of real wages of unskilled construction labourers in European cities, 1400-1800



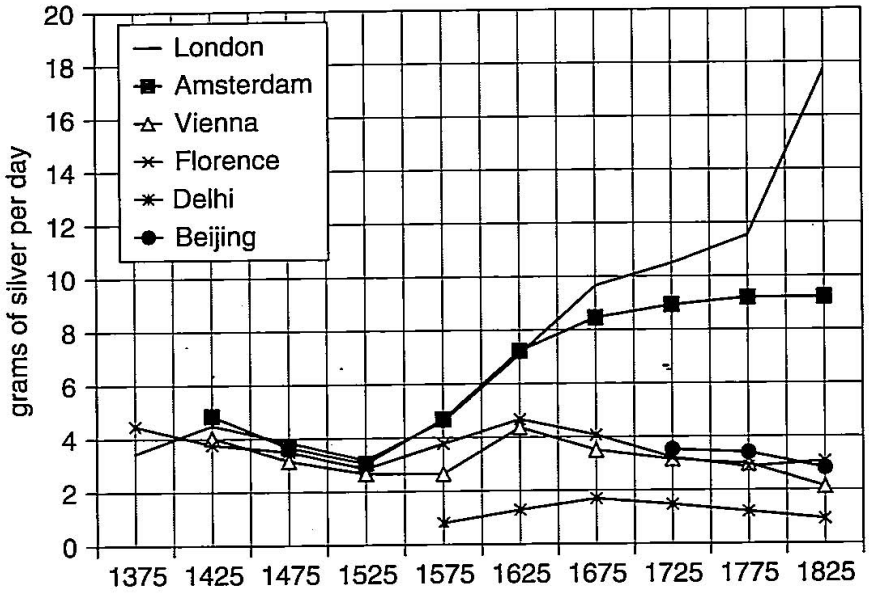
Source: van Zanden, *The Long Road to the Industrial Revolution*, p. 97

Average Wages in North Sea area compared with the average for the rest of Europe



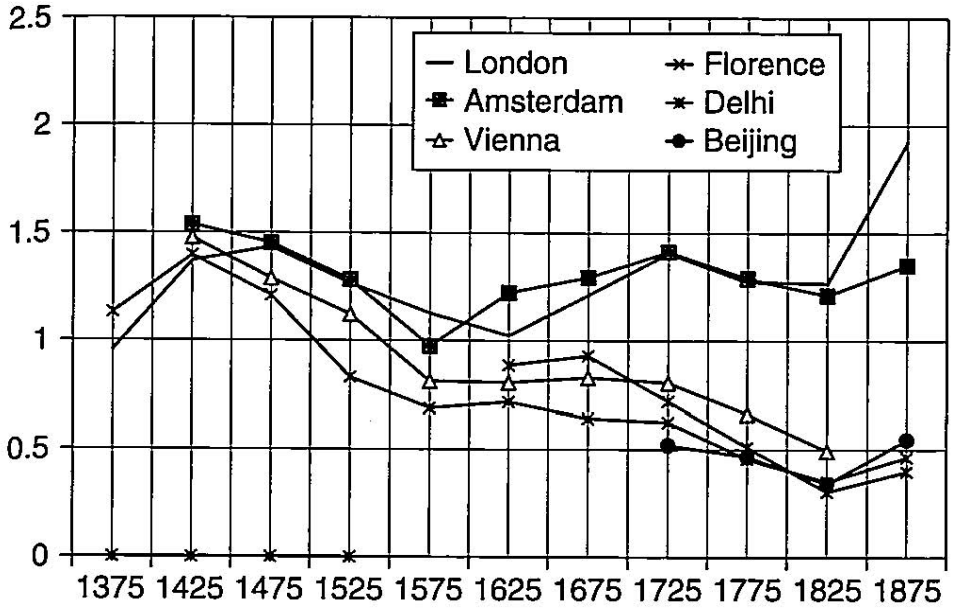
Source: van Zanden, *The Long Road to the Industrial Revolution*, p. 98

Labourers' Wages around the world, 1400-1800



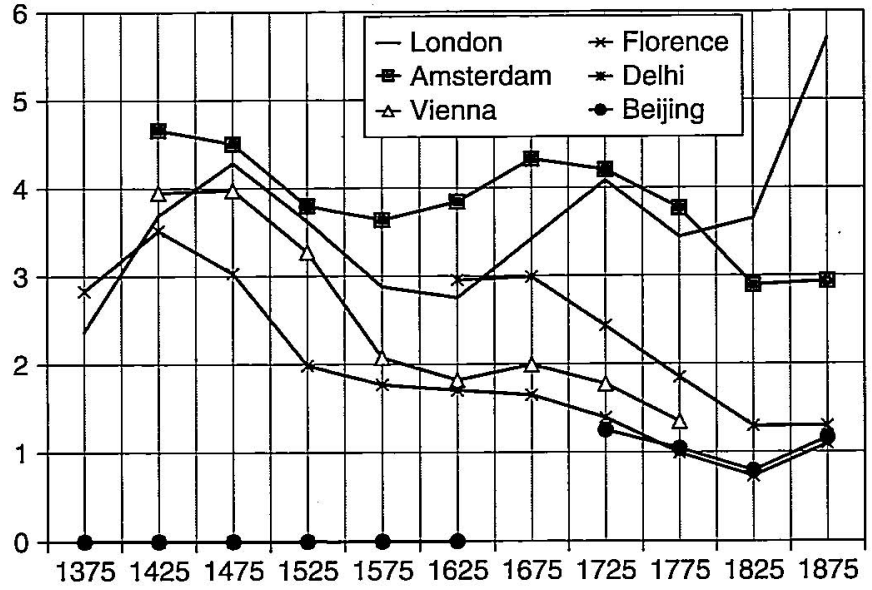
Source, Allen, *The British Industrial Revolution in a Global Perspective*, p. 34.

Respectability ratio for labourers' wages in relation to the cost of living, 1375-1875



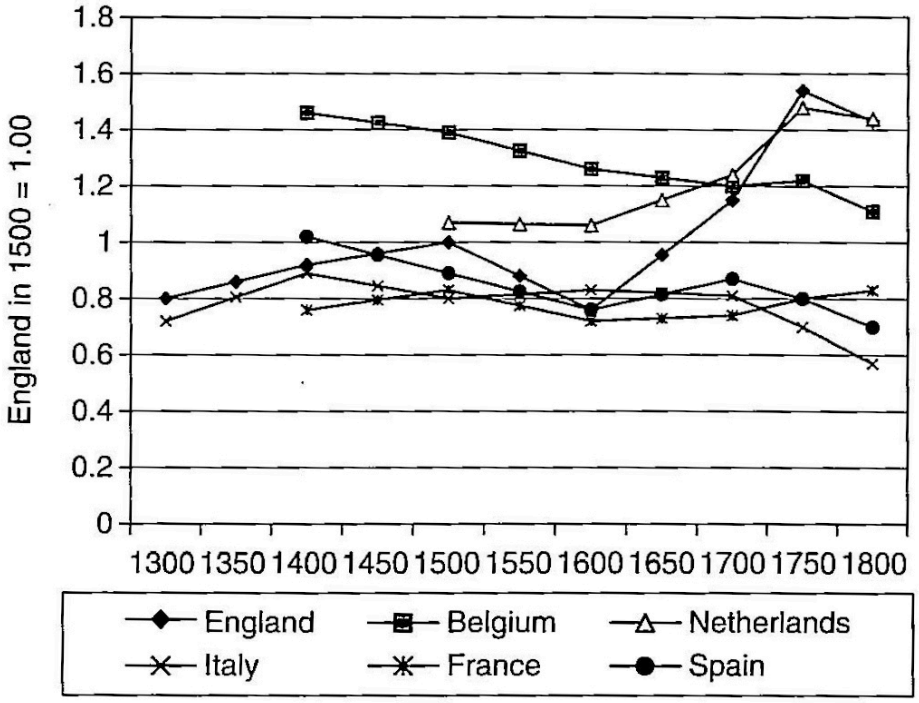
Source, Allen, *The British Industrial Revolution in a Global Perspective*, p. 39.
Note: Allen constructed a European basket of goods sufficient to provide a European worker with a respectable standard of living from the 14th to the 19th centuries. The respectable income is 1.0. Thus, if workers earned 1.5, they earned 50% more than the respectable wage.

Subsistence ratio for labourers' wages in relation to costs



Source, Allen, *The British Industrial Revolution in a Global Perspective*, p. 40.
Note: Workers earning 1.0 could live a subsistence standard of living.

Agricultural Labor Productivity



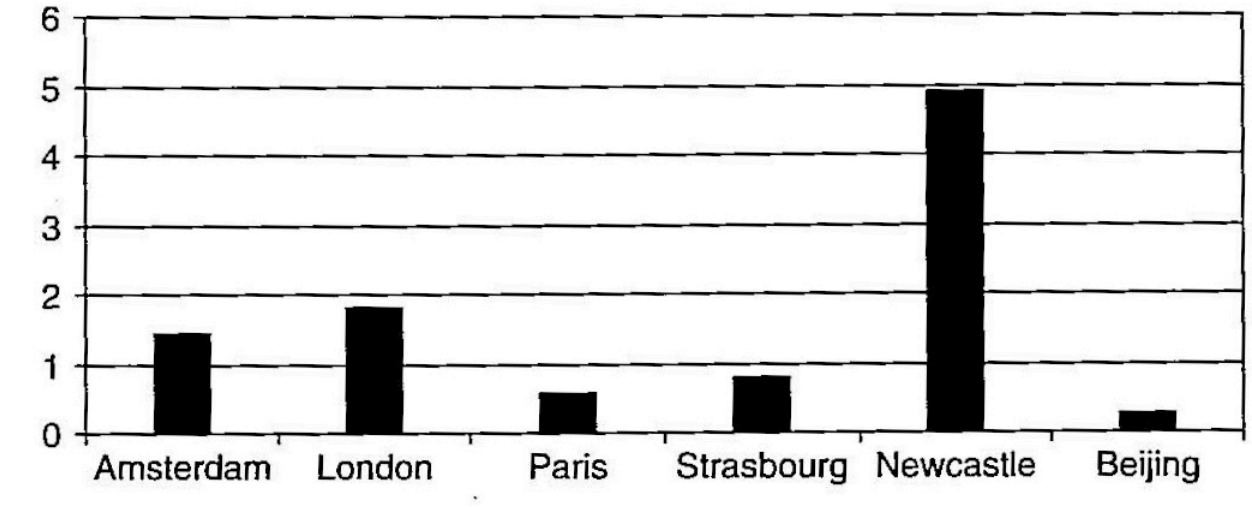
Source, Allen, *The British Industrial Revolution in a Global Perspective*, p. 60.

The Real Price of Energy in Europe

	Average real price of energy for half-century beginning								
	1400	1450	1500	1550	1600	1650	1700	1750	1800
London, coal		3.76	3.36	3.08	2.63	3.56	3.93	3.96	3.84
London, charcoal	6.35	4.50	4.14	5.91	5.08	10.21	11.15	10.08	
Northeast UK coast, coal			0.35	0.57	0.60	0.48	0.54	0.75	
Western UK, coal			0.69	0.69	0.63	0.58	0.63	0.65	0.50
Western UK, charcoal			1.30	1.26	1.30	1.80	2.49	2.97	2.67
Amsterdam, peat			4.04	3.01	4.09	3.70	4.21	4.87	7.08
Amsterdam, wood					2.55	3.39	3.57	4.23	5.67
Amsterdam, coal									4.57
Antwerp, charcoal	8.01	8.57	7.25	7.50	9.96	10.49	12.61	13.94	12.31
Antwerp, peat						15.31	20.28	23.15	15.92
Antwerp, coal				6.53	4.92	6.41	7.61	6.60	5.51
Paris					5.50	5.39	6.95	6.65	
Florence			4.73	4.79	5.02		6.10	5.13	6.38
Naples				7.88	8.45		7.01	5.85	5.39
Valencia	9.97	9.04	9.03	7.80	6.64	6.90	5.53	6.58	
Madrid				7.17	6.49	7.06	6.16	5.98	6.28
Strasbourg	2.82	2.25	2.08	2.54	2.38	2.69	3.34	4.30	5.93
Leipzig				4.18	3.73	3.05	4.21	3.69	
Vienna	2.87	2.58	2.34	2.65	2.15	2.72	3.20	3.31	2.76

Source, Allen, *The British Industrial Revolution in a Global Perspective*, p. 101

The Price of Labour Relative to Energy, early 1700s



Source, Allen, *The British Industrial Revolution in a Global Perspective*, p. 140

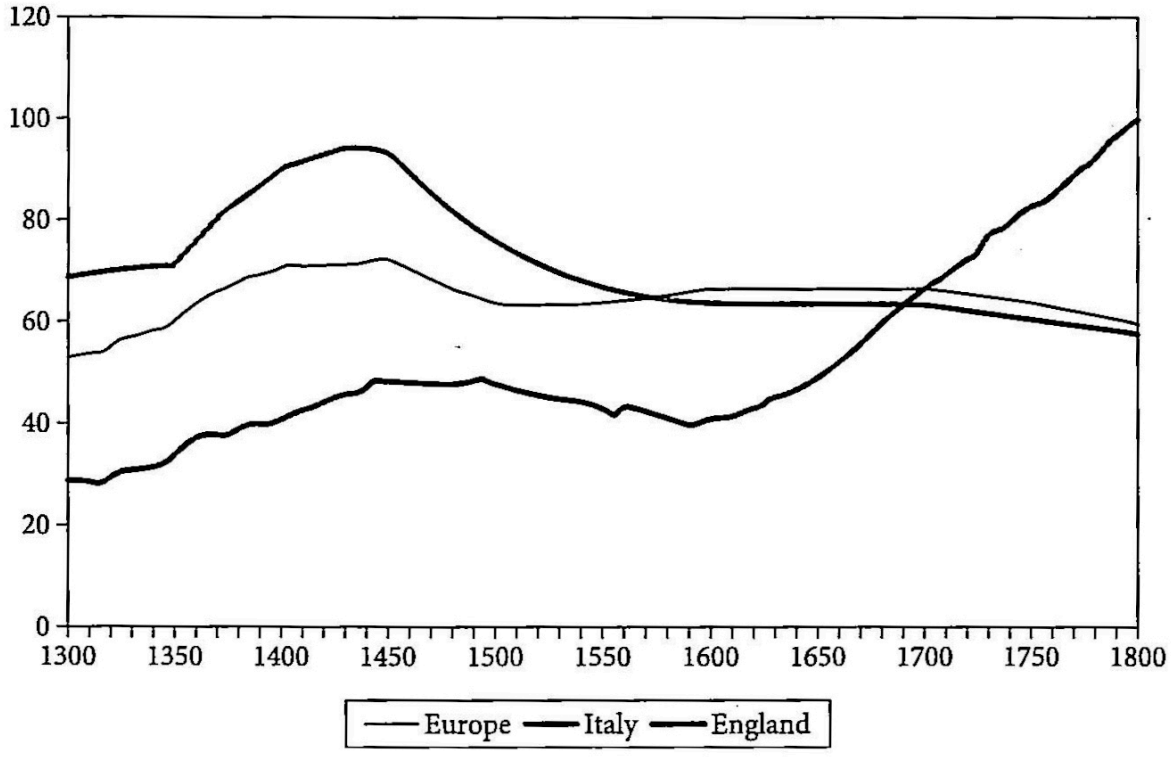
Estimates of the development of GDP per capita in 16 European countries, 1500-1820 (Britain = 100)

	c. 1300	c. 1400	c. 1500	c. 1570	c. 1650	c. 1700	c. 1750	1820
England	29	38	43	43–45	54	69	84	100
Netherlands	–	–	58	58	95	94	94	92
Belgium	–	–	46	55	53	55	61	62
Italy	71	71	67	65	60	57	61	53
Spain	–	–	43–48	43–48	39–48	39–44	40–41	48
Sweden	–	–	–	51	–	–	–	56
Poland	–	–	45–53	42–48	42–49	35–40	30–33	41
Average* (unweighted)	–	–	c. 51	c. 52	c. 58	c. 59	c. 62	c. 66
Average* (weighted)	–	–	c. 54	c. 54	c. 55	c. 56	c. 56	c. 58

*without Sweden

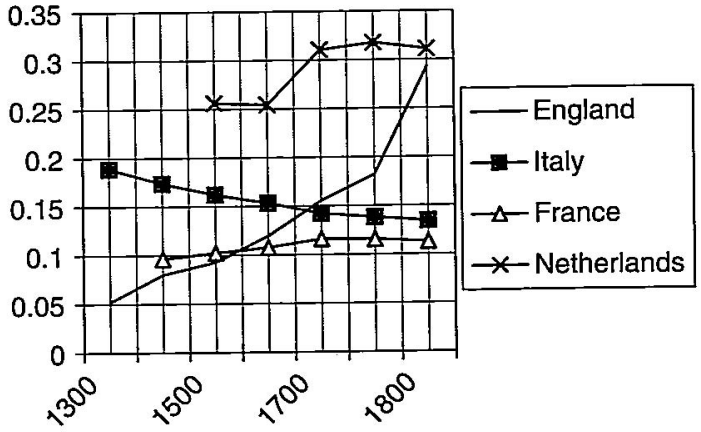
Source: van Zanden, *The Long Road to the Industrial Revolution*, p. 241

Simulated GDP per capita: Europe, Italy and England, 1300-1800 (England = 100)

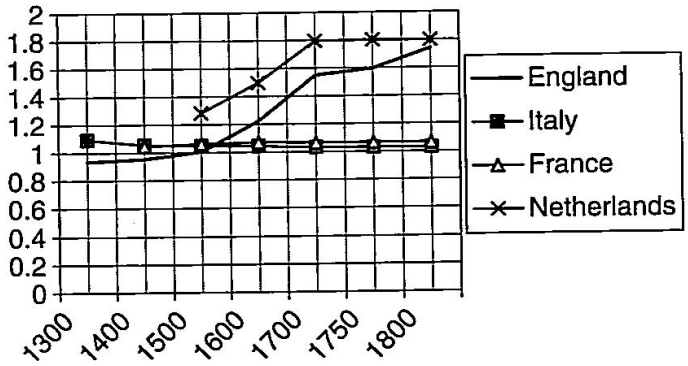


Source: van Zanden, *The Long Road to the Industrial Revolution*, p. 258

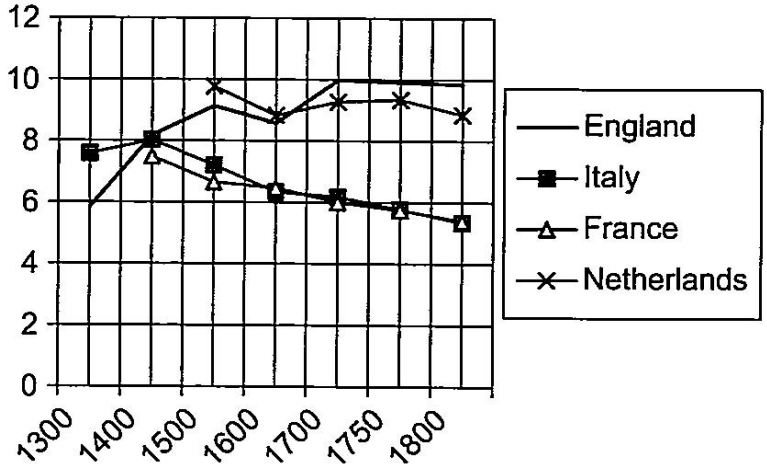
Simulated urbanization rate, 1300-1800



Simulated agricultural total factor productivity, 1300-1800



Simulated real wages, 1300-1800



Source, Allen, *The British Industrial Revolution in a Global Perspective*, pp. 122-23