Econ 210a: 2023-02-08 We 13:00 PST: DeLong: Agricultural Revolution

- Gregory Clark. 2001. "The Secret History of the Industrial Revolution." Unpublished manuscript. <<u>http://faculty.econ.ucdavis.edu/faculty/gclark/</u> papers/secret2001.pdf>
- Robert C. Allen. 1999. "Tracking the Agricultural Revolution in England". *Economic History Review* 52: pp. 209–235. <<u>https://</u>www.jstor.org/stable/2599937>
- Robert P. Brenner. 2001. "The Low Countries in the Transition to Capitalism", *Past and Present* https://web.archive.org/web/20160910131149if_/http://www.unsa.edu.ar:80/histocat/haeconomica 07/ lecturas/lawcountries.pdf>

1

"The West"



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"Dover Circle"-Plus

The "Dover Circle"-Plus

Date	Ideas Growth Rate h	Ideas Stock Level	Real Income/ Capita y	Popula- tion P (millions)	Total Income Y (billions)	Ideas Growth Rate h	Populati on Growth n	Efficiency- Growth g	Increasing Resources P
800	0.022%	0.240	\$900	8	\$7.20	0.022%	0.044%	0.000%	0.000%
1500	0.096%	0.471	\$1,000	25	\$25.00	0.096%	0.163%	0.015%	0.000%
1770	0.200%	0.807	\$1,400	75	\$105.00	0.200%	0.407%	0.125%	0.257%
1870	0.914%	2.013	\$2,800	175	\$490.00	0.914%	0.847%	0.693%	0.405%
2010	2.514%	67.989	\$50,000	800	\$40,000.00	2.514%	1.086%	2.059%	0.175%

- A region that is nowheresville in 800...
- But the heavy plow and the iron axe transform it into a high-value agricultural region after 800...
- And divergence happens...

More Guesses...

The "Dover Circle"-Plus

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· Ideas-stock generation the Big Enchilada..

But also: "resource engrossment"
Settlement

Settlement...
Emulation

- Purchase, theft, unequal exchange, other forms...
 - Plus: feedback from empire on *institutions*...
 - Plus: feedback from empire on investment...

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Guesses & Major Features

Guesses at Global Longest-Run Global Economic Growth

Date	Real Income/ Capita y	Popula- tion P (millions)	Total Income Y (billions)	ldeas Stock Level H	Ideas Growth Rate h			Population Growth n	Efficiency- Growth g
-8000	\$1,200	2.04	\$2.4	0.037	0.003%		Neolithic revolution	0.006%	0.000%
-6000	\$900	5.09	\$4.6	0.043	0.009%		"Tribal" mode of production	0.046%	-0.014%
-4000	\$900	10.5	\$9	0.062	0.018%		Final start of "urbanization"?	0.036%	0.000%
-3000	\$900	15	\$14	0.075	0.018%		Start of Bronze-Literacy age	0.037%	0.000%
-1500	\$900	37	\$33	0.117	0.030%		Bronze-Literacy mode of pro	0.060%	0.000%
-1000	\$900	50	\$45	0.136	0.030%		Start of Iron age	0.060%	0.000%
-400	\$900	103	\$93	0.195	0.060%		"Ancient" mode of domination	0.120%	0.000%
150	\$900	200	\$180	0.272	0.060%		High Antiquity	0.121%	0.000%
800	\$900	240	\$216	0.297	0.014%		Late-Antiquity Pause	0.028%	0.000%
1000	\$900	296	\$266	0.330	0.052%		Feudal mode of production	0.105%	0.000%
1500	\$900	500	\$450	0.429	0.052%		Commercial-Gunpowder-Empire	0.105%	0.000%
1770	\$1,100	750	\$825	0.643	0.149%		Imperial-Commercial Revolutio	0.150%	0.074%
1870	\$1,300	1299	\$1,689	1.000	0.442%		Steampower mode of produc	0.550%	0.167%
1930	\$3,000	1909	\$5,727	3.000	1.714%		Second-Industrial-Revolution	0.641%	1.394%
1975	\$6,000	3678	\$22,069	9.000	2.269%		Mass-Production mode of pr	1.457%	1.540%
2020	\$12,000	7566	\$90,794	27.000	2.342%		Global-Value-Chain mode of	1.603%	1.540%
2100	\$50,000	10000	\$499,990	129.333	1.958%	?	Into the Future?	0.349%	1.784%

 The Neolithic Revolution from -8000 to -6000 The glacial pace of technological progress in the past—1870 to 2010 we saw, in an average year, 200 times the h of the early Agrarian Age. (And, of course, growth from a much, much higher pace.) 3. Nevertheless, the large cumulative magnitude of technological progress. 4. The acceleration of growth in the early Agrarian Age -6000 to the year 1 5. The Late-Antiquity Pause from 150 to 800 6. The Mediæval Recovery 7. The Imperial-Commercial Age step-up in growth over 1500 to 1770 8. The British Industrial Revolution Age from 1770 to 1870. Modern Economic Growth from 1870 to 2010. 10. The Population Explosion and Demographic Transition from 1770 to 2100. 11. Whatever is going on now-if global warming and other problems do not interrupt Modern Economic Growth, what do we have to look forward to for the world of 2100? 12. Is this a misguided intellectual enterprise focusing on H, and taking it to be something real and important rather than a distracting mentalfictional cloud-castle that does more to confuse than to enlighten us?

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Allen & Clark & Brenner

- Robert C. Allen. 1999. "Tracking the Agricultural Revolution in England". *Economic History Review* 52: pp. 209–235. <<u>https://www.jstor.org/stable/2599937</u>>
- Gregory Clark. 2001. "The Secret History of the Industrial Revolution." Unpublished manuscript. http://faculty.econ.ucdavis.edu/faculty/gclark/papers/secret2001.pdf
- Robert P. Brenner. 2001. "The Low Countries in the Transition to Capitalism", *Past and Present* https://web.archive.org/web/20160910131149if /http://www.unsa.edu.ar:80/histocat/ haeconomica 07/lecturas/lawcountries.pdf>
- Even as late as 1870, the Dover-Circle-Plus economy is still primarily an agricultural economy...
- Therefore what went on in agriculture (and other resource-heavy sectors) was absolutely key...
- But we tend to focus on manufacture—and thus neglect the truly important processes in terms of innovation and deployment...

Allen

- Robert C. Allen. 1999. "Tracking the Agricultural Revolution in England". *Economic History Review* 52: pp. 209–235. <<u>https://www.jstor.org/stable/2599937</u>>
 - Small-scale farmers in the open fields...
- Parliamentary enclosures...
- Rural institutions and agricultural modernization...



Memo: The Break-Out



10

Were Enclosures a Big Deal?

Table 3.	Agric	ultur	al	productio	on	in
Canwick,	before	and	after	enclosure	(£	p.a.)

	Open	Enclosed
Wheat	£1,425	£1,030
Barley	1,362	1,662
Cows	414	204
Bullocks (bred)	480	90
Bullocks (fed)	0	100
Sheep (fatted)	0	390
Sheep (bred) wool	200	400
Lambs	0	200
Total	£3,881	£4,076

Clark

- Gregory Clark. 2001. "The Secret History of the Industrial Revolution." Unpublished manuscript. <<u>http://faculty.econ.ucdavis.edu/faculty/gclark/papers/secret2001.pdf</u>>
- "There was nothing special about the events of 1770 and later in England. 1770 was just the latest of a series of episodic spurts of growth that had been occurring in Europe since the Middle Ages. That growth was indeed confined to a small region of the English economy. England itself had quite significant economic growth in the bad old days of the seventeenth century. That is why no one can find the significant cause of the events of 1770. Nothing unusual happened. The seeming dramatic industrialization of the British economy in these years was the result just of the unusual demographic experience of England compared to the rest of Western Europe. This population growth combined with rapid productivity growth in small parts of the English economy spurred rapid structural change and urbanization..."

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Greg's Ten Points

- 1. Growth of real output per capita, and of productivity was much slower in the Industrial Revolution than previous estimates have suggested. Even moderate rates of growth of output per person, by modern standards, did not appear till the 1870s.
- 2. Output per capita grew as rapidly in the bad old days of the Stuart monarchs and the Civil War in the seventeenth century as in the Industrial Revolution.
- 3. Pre-industrial England was a much wealthier economy than has previously been realized. Per capita real GDP in the 1760s, for example, was similar to that of Egypt and Indonesia in 1992. English per capita income was double that of Nigeria and Kenya, and four times that of Chad or Malawi.
- 4. Since per capita income in England in the late eighteenth century was more than half its level in the 1900s, when English per capita incomes are estimated by some scholars to have been nearly ten times those of India and China, Ken Pomeranz must be wrong to conjecture that incomes per capita were equivalent in the advanced parts of Asia with those of Europe in 1800.
- 5. The modest productivity growth rates of the Industrial Revolution owed mostly to productivity gains in one sector, textile manufacture.
- 6. It was accidents of demand, demography, and trade that allowed innovations in this sector to have a much bigger impact than previous innovations of similar magnitude in terms of productivity gains made in 1768 and 1769. These were the spinning jenny, and the water frame.
- 7. The southern two thirds of England saw almost no growth in output per capita or productivity growth in the Industrial Revolution.
- 8. Manual worker's real incomes in the Industrial Revolution period rose much more than did real output per capita, because of the consumption bundle they consumed, and because of the decline in real property incomes per person.
- 9. Other places in Europe in the years 1200 to 1760 saw similar episodes of productivity growth that were as substantial as those in England from 1760 to 1860. Thus between 1550 and 1650 the Netherlands saw significant productivity advance.
- 10. The appearance that the Industrial Revolution in England represented a decisive break from the past is largely a product of the unusual demographic experience of England in the Industrial Revolution years. This demographic growth would have spurred industrialization absent any productivity advance. This demographic growth, by driving up land rentals and creating urbanization, spurred a number of changes in the economy, such as the enclosure of common lands, improvements in transportation, the expansion of coal mining, and perhaps also the fall in interest rates in the eighteenth century

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Reference Tables Table 13: Agricultural Consumption per Person in England, 1700s to 1860s Table 8: GDP per Capita in England Relative to Modern Economi England and Wales North (20+) South (20+) 1700-9 1860-9 (20+) (50) (20-Year Income per capita (1992 \$) All Occurations 6.313.053 1.572.140 3.773.383 5.16 19.97 UK Mexico Bulgaria Iran South Afric England England England England England Ghama Kenya Nigeria Malawi Chad 1992 1992 1992 1992 1992 1860s 1992 1400s 1992 1992 1992 1300s 1992 1992 1992 1992 1992 1992 1992 16,302 7,867 6,774 4,161 3,885 2,982 2,601 2,382 2,359 2,274 2,066 1,633 1,464 1,249 1,176 1,126 007 504 Cotton and Liner Textiles Woosted Wool Textiles Silk Textiles All Textile Manufacture 12.7 57,243 353.075 63.1 111.7 English Farm net output (£ m. 114,178 120,822 86,380 694,363 1.8 1.9 1.4 46,652 66,348 27,450 3.0 4.2 1.7 36,922 29,295 38,266 2.2 75.2 Net Food Imports (£ m.) Net Raw Material Imports (£ m.) -13 62.7 Domestic Coal Consumption (£ m.) 1.7 50.3 357.90 Clothing 220.76 Total Food, Energy and Raw Material Consumption (£ m.) 65.7 309.9 3.0 3.2 4.6 26.7 71,705 58,172 67763 296.460 83,808 115,880 194767 ,144,365 2.2 3.1 5.2 30.3 Consumption per Person (£) 12.7 12.7 Predicted Consumption (£) 15.8 832,386 147,956 13.2 148,678 9.5 530,008 2.3 23,241 1.5 119,502

Notes: Cotton, wool, flax, and silk retained for home consumption are estimated by subtracting the raw material content of textile exports estimated using figures given in Deane and Cole (1962)

Population (millions

lawyers, doctors, gamekeepers, musicians, imkeepers, chinney sweeps, haird Sources: Coal production: Flynn (1984, p. 26) and Church (1986, pp. 19, 53, 85-97). Imports 1860-9: Mitchell (1988). Imports 1700-9: Schumpeter (1960, tables XV, XVII). Exports 1700 among other occupations

Schumpeter (1960), tables VII, IX, X, XII, XIII), Mitchell (1988), pp. 221-2).



Notes: Workers in adult male equivalents based on relative wages of men, women, boys and

girls. "Services" includes domestic servants, teachers and governesses, laundresses, clergy,

Brenner

• Robert P. Brenner. 2001. "The Low Countries in the Transition to Capitalism", *Past and Present* < <u>https://web.archive.org/web/</u>20160910131149/https://www.unsa.edu.ar/histocat/haeconomica07/lecturas/lawcountries.pdf>

- The Feudal System
- "Transition"

• ?

- Commercial Society
- What Rules for Reproduction Made Sense for Peasants and Lords?
- Safety first/produce for subsistence
- Political Accumulation—extensive and intensive
- Feudalism, commercialization, and urbanization

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"Transition"

What Makes Sense in 1000?

An Economy of Serfs, Craftsmen, Priests, Knights, Lords, & the Occasional Merchant:

- What Rules for Reproduction Made Sense for Peasants and Lords?
- Safety first/produce for subsistence
- Political Accumulation-extensive and intensive
- Feudalism, commercialization, and urbanization
- Forms of "Crisis"
- Malthusian...
- Seigneurial...

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What Makes Sense in 1700?

An Economy of Laborers, Farmers, Landlords, Artisans, Guilds, Merchants, Mercenaries, Lords, & the Seafarers:

- What Rules for Reproduction Made Sense for "Commercial Society"?
- Production for subsistence economically impossible
- Build your commercial network!
- Greatly reduced rent-sharing

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- Robert C. Allen. 2011. "Why the Industrial Revolution Was British: Commerce, Induced Invention and the Scientific Revolution." *Economic History Review* 64 (May): 357-384. <<u>https://www-jstor-org.libproxy.berkeley.edu/stable/41262428</u>>
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- Simon Kuznets. 1971. "Modern Economic Growth: Findings and Reflections." Nobel Prize Lecture. <<u>https://www.nobelprize.org/prizes/economic-sciences/1971/kuznets/lecture/</u>>
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