ECONOMIC AND BUSINESS HISTORY 23/24

LECTURE 6 – INDUSTRY AND GROWTH

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Industry and Growth

- English Exceptionalism
- Industrialization & Growth

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1. The English Exceptionalism

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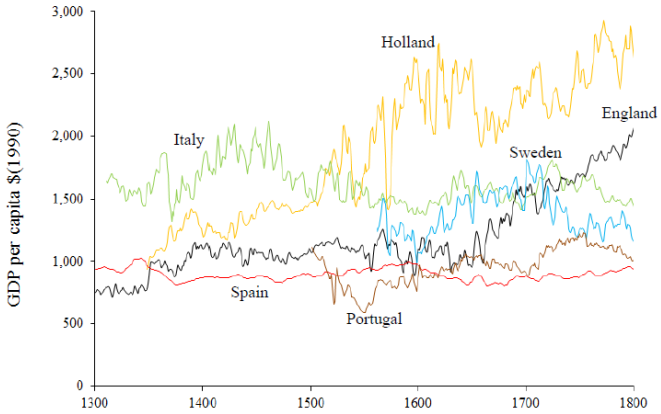
MEG. When and Where?



Sources: England (Broadberry et al. 2011); Italy (Malanima 2011); Holland (van Zanden and van Leeuwen 2012); Sweden (Schön and Krantz 2012); Spain (Alvarez-Nogal and Prados de la Escosura 2013); Portugal: (Reis et al. 2013, Palma and Reis 2014). * 3-year average; Spain: 11-year average.

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MEG: Where? When?

- Growth was not uniform
- Sustained growth can only be found in England/GB
- Italy and Spain are not wealthier in 1800 than in 1500.
- Portugal, Holland and Sweden have moments of growth but also decay
- Note: Holland's trajectory is not sustained growth, as it saw periods of decay of GDP per capita
  - Also, "Holland" corresponds only to the highly-urbanised province of that name and not to the state (Netherlands/United Provinces) as a whole.
- These cases can be explained by a Malthusian theory, but not England
- How to explain England's singular trajectory?

The Agrarian Deadlock

- The problem affecting all world economies is the Malthusian trap:
- In a Market Economy, what would have happen if there were a massive transfer of labour from Agr to Industry?
  - Europe did not have the technological conditions to tra nsport bulk agrarian goods across borders
  - Given proteccionism and great powers' frequent warfa e, the political conditions for smooth trade were also la cking

Agricultural Population (%)

	1705	1775	1845
England	35	29	20
France	70	65	59
Prússia	80	70	60
Spain	71	66	61
Average	64	58	50

Source: Dennison e Simpson 2010: 149

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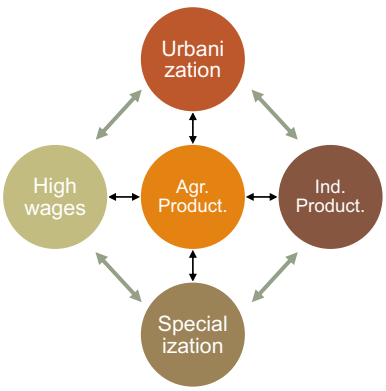
English Headstart in Agriculture



English and Dutch farm sector had more stimuli to increase productivity

High wages, higher productivity in other sectors, urbanization and specialization both stimulate and increase higher agrarian productivity

Yet, all these variables (industrial productivity, high wages, specialization and urbanization) are closely intertwined and have reciprocal causality

Can we find some independent variables?

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Labour Agricultural Productivty (100 = England 1800)

	1600	1700	1750	1800
England	53,1	80,4	107,7	100,0
Belgium	88,1	83,9	85,3	77,6
Holland	74,1	86,7	103,5	100,7
France	50,3	51,7	55,9	58,0
Italy	58,0	56,6	49,0	39,9
Spain	53,1	60,8	55,9	49,0
Germany	39,9	37,8	39,2	46,9
Austria	39,9	51,7	69,9	51,5
Poland	54,5	65,7	65,0	74,8
average	56,7	63,9	70,1	66,4

Fonte: Dennison e Simpson 2010: 150

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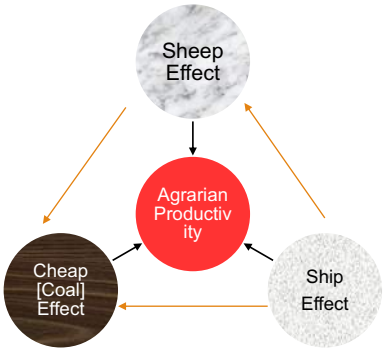
English/British Succe



''The succes of the British economy [since the 17th cent.] is due to long-haired sheep, cheap coal and (…) rising volumes of international trade''
(Allen, The British Industrial, p. 130)

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"Sheep Effect"

- Saint Thomas Moore, 1516 spoke about the 'men-eating sheep'
- Ovines all across Europe. Yet, in England:
  - Intense competition between pasture and grain
  - Increase in weight and wool per animal
  - Export-oriented agriculture (supply of Italian and Flemish industries)

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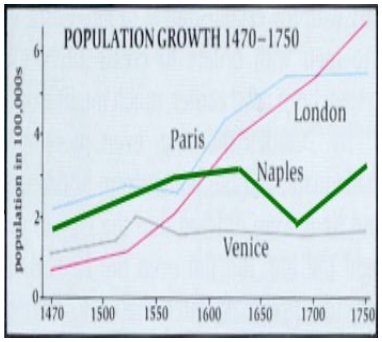
"Ship Effect"

- Trade-induced population growth of London (major port for Europeand, first, then Atlantic and then Asian trade) pushes for agricultural specialization in the countryside
- Increase in urbanization rate
- Integrated with internal markets with good transport (hence, no Lisbon or Napoli effect)



Fonte: millwall-history.org.uk)

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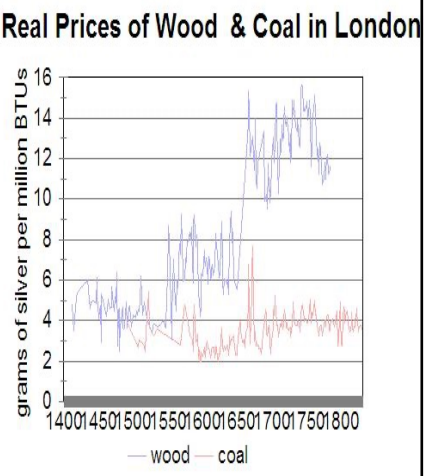
"Cheap Effect"

- Cheap Effect (or Wrigley Effect or Coal Effect)
- Urbabnization increases demand for heating and industry
- Demand leads to the exhaustion of wood and increasing demand for (dirtier, but cheaper) coal in the 'underground forest'
- Adoption of coal saves forest, helping agriculture and urbanization
- Cheap Energy



Source: Allen (2012), op cit

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High wages relative to Capital and Energy

RATIO WAGE/INTEREST RATE

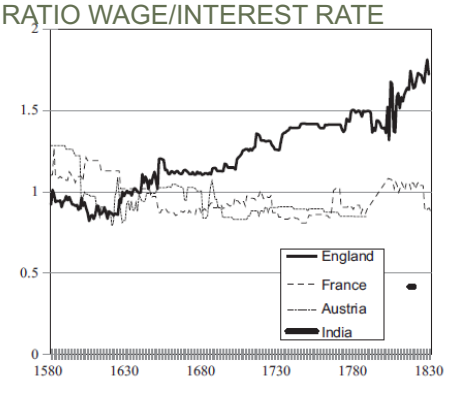

Fig. 4. Wage relative to price of capital.

RATIO WAGE/ENERGY PRICE

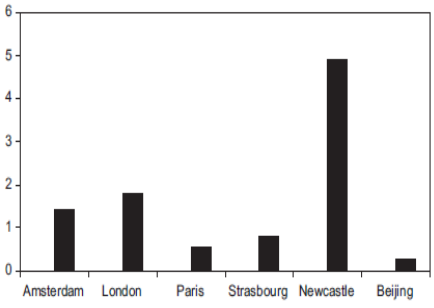

Fig. 6. Price of labour relative to energy.

Fonte: Allen (2012), Backward into the future: The shift to coal and implications for the next energy transition, Energy Policy, 50 (17-23).

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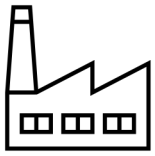
2. Industry and Growth



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Industry and Growth

Given its capital-intensive production, industry leads to increasing productivity per worker

Industrialisation and the creation of new technologies is, especially in England, a consequence of productivity increases in agriculture

As better technologies developed, industry increased its share of the total output and workforce and became the most important dominant sector (to which capital flowed)

What about the other countries?

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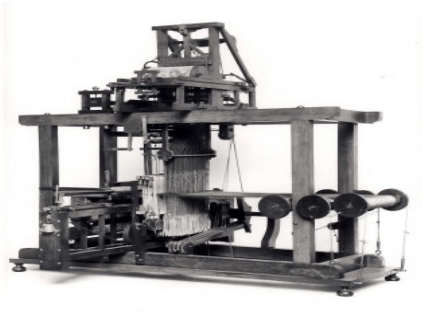
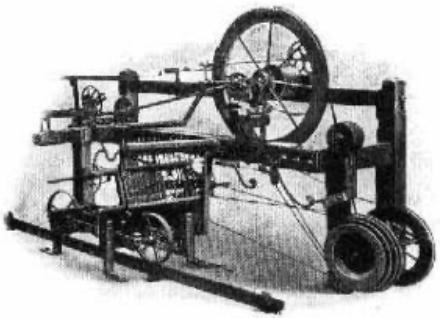
Invention



Silk loom inveted by Vaucanson, 1745, by order of the king for 'helping' the silk industry. Yet, the great manufacturers rejected. Why?

Innovation



Authomatic Loom by Cartwright, 1789. Inspired by Vaucanson, Reverend Cartwright was able to create and patent a loom. Widely spread in England. Why?

Rate of Return of an investment in a *Spinning Jenny* , c. 1800

Worker productivity increase (factor)	Useful time (% day)	UK	France	India	Portugal
3	50	51.2%	10,7%	3,0%	22,1%
3	40	38,0%	02,5%	-5,2%	14,8%
3	30	24,0%	-8,2%	-17,3%	7,3%

SOURCE: ALLEN 2009; FOR PORTUGAL; OWN CALCULATIONS, USING FORMULA $J = \sum (w\Delta L - m)/(1+r)^n$

"Industrial Revolution" outside the UK

- By 1800, the industrial sector was progressing decisively in the UK, given its combination of high wages and low interest rates.
- Thus, mechanisation paid off in the UK, but only risk-seeking investors would mechanise in Europe (France or Portugal)
- Aisan low wages meant that Asian countries did not have the right factor prices for mechanising their manufactures

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PER CAPITA INDUSTRIALIZATION LEVELS (UK in 1860=100)

		1750	1800	1830	1860
NW Europe					
	Bélgium	14	16	22	44
	Denmark	-	13	13	16
	Finlând	-	13	13	17
	Holland	-	14	14	17
	Norway	-	14	14	17
	Sweden	11	13	14	23
	UK	28	30	39	100
S Europe					
	France	14	14	19	31
	Gréece	-	8	8	9
	Itály	13	13	13	16
	Portugal	-	11	11	13
	Spain	11	11	13	17
East and Central Europe					
	Austria-Hungary	11	11	13	17
	Bulgária	-	8	8	8
	Gerrmany	13	13	14	23
	Romania	-	8	8	9
	Rússia	9	9	11	13
	Serbia	-	8	8	9
	Switzerland	11	16	25	41
Europe		13	13	17	27
World		11	9	11	11

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"Industrial Revolution" outside the UK

- By 1800, the industrial sector had only progressed decisively in the UK. What abouy other European countries?
- A Mixed Bag!
- From 1820, some countries were rapidly becoming industrialised:
  - 1) technology continued to improve in effiency in the UK
  - 2) wages/interest ratio increased in Europe
  - 3) coal! (industrialising Belgium, Germany and France had coal mines)

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1870. How many industrialised countries?

	Industrial Output in % of Total Output/GDP	Industrial Output in % of European Ind. Output	Country GDP in % of European GDP
NW Europe			
Belgium	**30**	**3,9**	**3,4**
Denmark	20	0,6	0,8
Finland	17	0,3	0,6
Holland	24	1,8	2,1
Sweden	21	1,0	1,3
United K.	**34**	**30,3**	**25,5**
S Europe			
France	**34**	**18,9**	**15,8**
Italy	24	10,0	11,6
Portugal	17	0,7	1,1
Spain	22	11,0	13,0
C and E Europe			
Austrian Empire	19	9,0	13,1
Áustria	23	7,0	8,8
Hungary	12	1,8	4,4
Germany	**28**	**20,0**	**20,0**

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"Industrial Revolution" outside the UK

- By 1870, the industrial sector only progressed decisively in a few countries (criterion: share of industrial output/share of total output higher than 1)
- Still, agraian countries like Austria, Sweden, Holland, Denmark, Finland (and non-European Australia and Canada) also grew relatively fast in 1820-70 (see data below)

Table 6 Growth of per capita GDP at constant 1990 prices, 1500–2001 (annual average compound growth rate)

	1500–1820	1820–1870	1870–1913	1913–1950	1950–73	1973–2001	1820–2001
Australia	0.08	3.36	1.06	0.99	2.43	1.90	2.09
Austria	0.17	0.85	1.45	0.18	4.94	2.12	1.56
Belgium	0.13	1.44	1.05	0.70	3.54	1.95	1.54
Canada	0.26	1.27	2.27	1.35	2.83	1.72	1.79
Denmark	0.17	0.91	1.57	1.56	3.08	1.83	1.62
Finland	0.17	0.76	1.44	1.91	4.25	2.19	1.82
France	0.14	1.01	1.45	1.12	4.04	1.71	1.63
Germany	0.14	1.08	1.61	0.17	5.02	1.60	1.59
Italy	0.00	0.59	1.26	0.85	4.95	2.10	1.58
Japan	0.09	0.19	1.48	0.88	8.06	2.14	1.91
Netherlands	0.28	0.81	0.90	1.07	3.45	1.83	1.37
Norway	0.17	0.52	1.30	2.13	3.19	2.83	1.73
Sweden	0.17	0.66	1.46	2.12	3.06	1.52	1.58
Switzerland	0.17	1.32	1.66	2.06	3.08	0.72	1.68
UK	0.27	1.26	1.01	0.93	2.42	1.86	1.37
USA	0.36	1.34	1.82	1.61	2.45	1.86	1.73
Arithmetic average	0.17	1.09	1.42	1.23	3.80	1.87	1.66
Weighted average	0.14	1.11	1.57	1.21	3.64	1.92	1.68