MEG and Structural Change

EBH26, LECTURE 3

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Innovation and Growth

- 'Industrial Revolution'?
- English Exceptionalism

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1. 'Industry' and 'Industrial Revolution'

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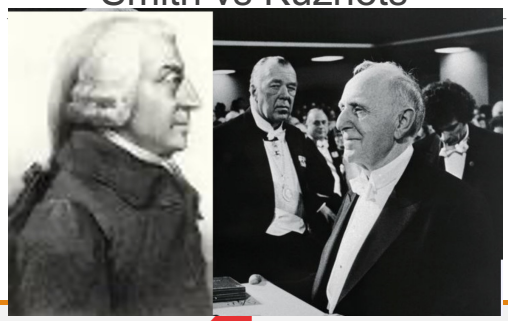
Smith vs Kuznets



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Industrial Revolution: theory or period?

- The term “Industrial Revolution” (IndRev) describes 3 distinct ideas
  1. a period (very loosely, 1750-1850) in which growth accelerated (this is the usage given by Galor)
  2. a process (approx. the same as ‘MEG’)
  3. a theory for explaining growth, arguing that growth comes from technological and structural change originating in the industrial sector
- In 1 and 2, IndRev is a conventional term (like the 'Middle Ages', the 'Renaissance', 'Climate Crisis', 'Cold War') or a well-defined process, with quantitative features
- **Meaning 3 is unsustainable, for reasons exposed here.**

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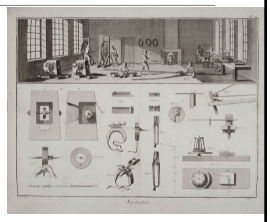
Growth in Labour Productivity

- Economic growth implies the increase of output per worker (or hour worked)
- The increase in labour productivity is typically the result of more (physical or human) capital per worker, like in Adam Smith's Pin Factory
- By contrast, in the IndRev theory, economic growth was an effect of rapidly-improving technology (steam machines and labour-saving machinery in textile industry and ironworks) in 1700-1800. Does this make sense?



A 18th-cent. pin factory, Adam Smith’s example of how the division of labour multiplied productivity by a very large factor … in the industrial sector

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Why an 'IndRev' could not occurr in industry?

- In a market economy, prices and wages in the agrarian sector would rise abruptly in case of a massive flow of labour and capital into the industrial sector.
- 18thcentury Europe did not have the technological conditions to transport bulk agrarian goods across borders
- Given proteccionism and great powers’ frequent warfae, the political conditions for smooth trade were also lacking
- As such, each country was constrained by its natural resources
- This problema can be called ‘The Agrarian Deadlock’ and is coherent to the Malthusian theory:
  - Natural scarcity prevents any sustainable rise in incomes

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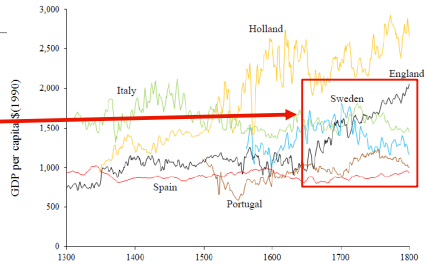
MEG. When and Where?

How was the Agrarian Deadlock broken here?



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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2. English Exceptionalism

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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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The Agrarian Deadlock

- By 1700, England was already well ahead of its continental rivals, as it was able to provide its essential goods with a small share of the population (reminder: by the 18th century, no tech or political conditions for trading bulk agrarian goods across borders)
- Also, England was more urbanised, wages were higher and specialization was more advanced

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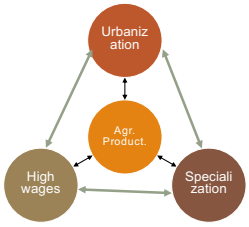
English Headstart in Agriculture



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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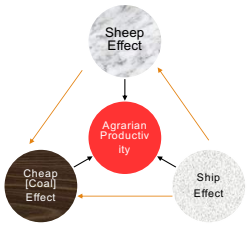
English/British Succe



"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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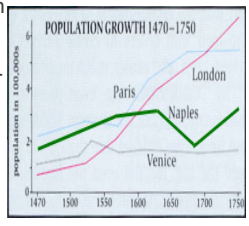
"Ship Effect"

- 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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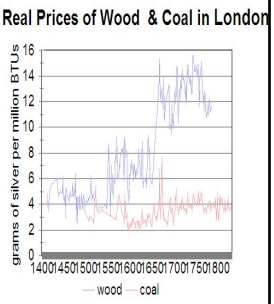
"Cheap Effect"

- 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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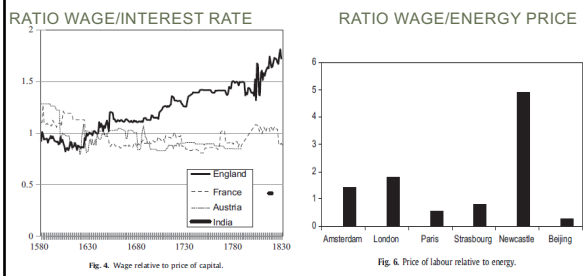
High wages relative to Capital and Energy



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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