

The background of the slide is a faded, sepia-toned illustration of an industrial town. A prominent feature is a tall, dark factory chimney on the left side, which is emitting a thick plume of dark smoke that rises into the sky. The town itself is composed of numerous buildings of varying heights and styles, typical of an industrial era. The overall scene is hazy, with the smoke and the faded colors creating a sense of a busy, yet somewhat obscured, industrial landscape.

Lecture IV

Feeding the Industrial Revolution

British Economic History 1750-1939

Part I

Paper 5

The British Agricultural Revolution

- The term Agricultural Revolution means those long-term structural and institutional changes that modernised agriculture and increased output
 - Even more controversial term than the Industrial Revolution
- Timing difficult: 1500-1850 or 1700-1750?
- Large local variations
 - Overton: the agricultural revolution played out on individual farms
 - South and East England the most progressive
 - Highland Clearances 1798→

- Two phases of the Agricultural Revolution
 1. pre-1750 – causally more important (Allen 1992)
 2. post-1750 – quantitatively more important (Overton 1996)

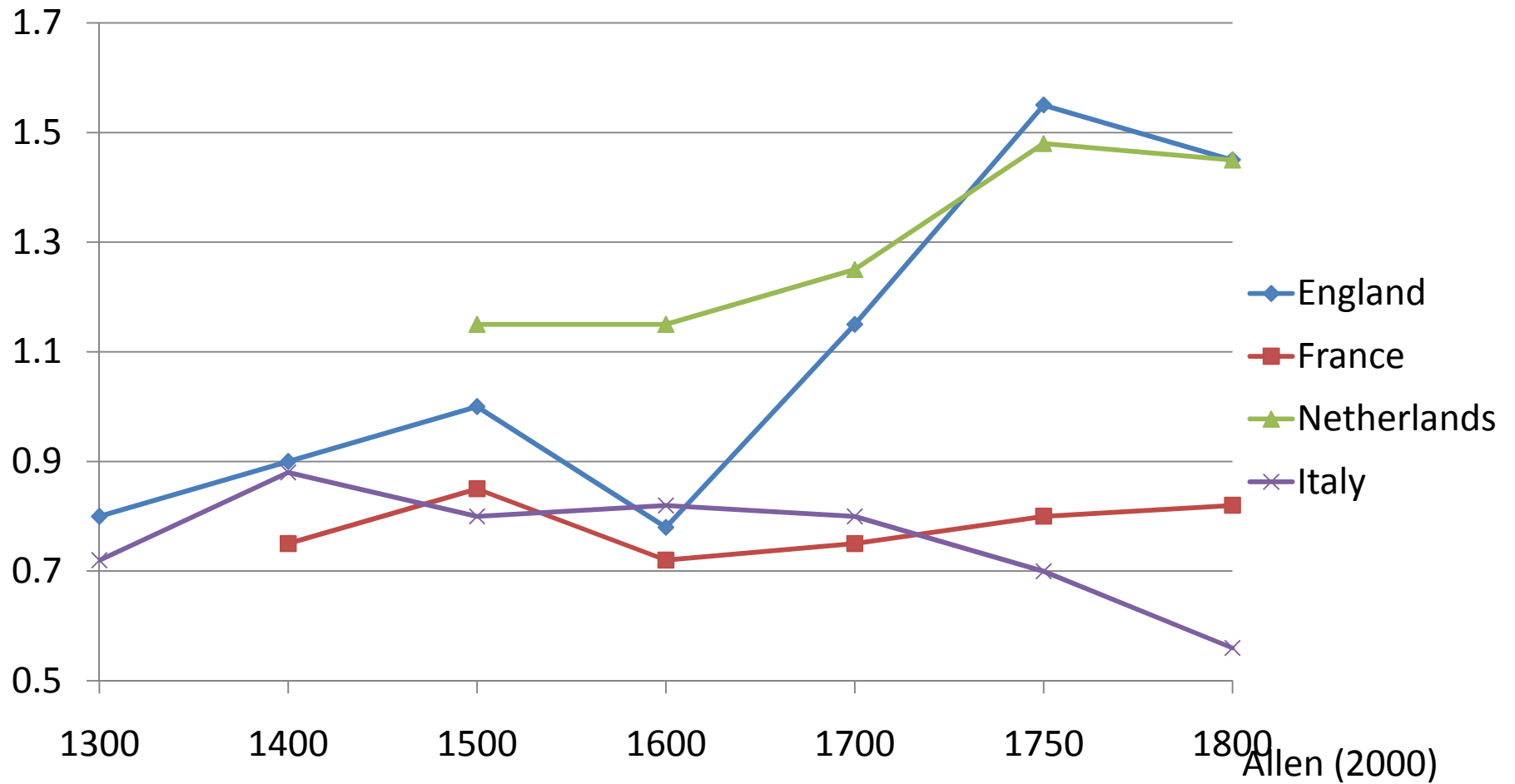
Key questions of today's lecture:

1. What were the changes that aided agricultural growth?
2. Did agriculture help industrialisation?

Yield Ratios in Europe

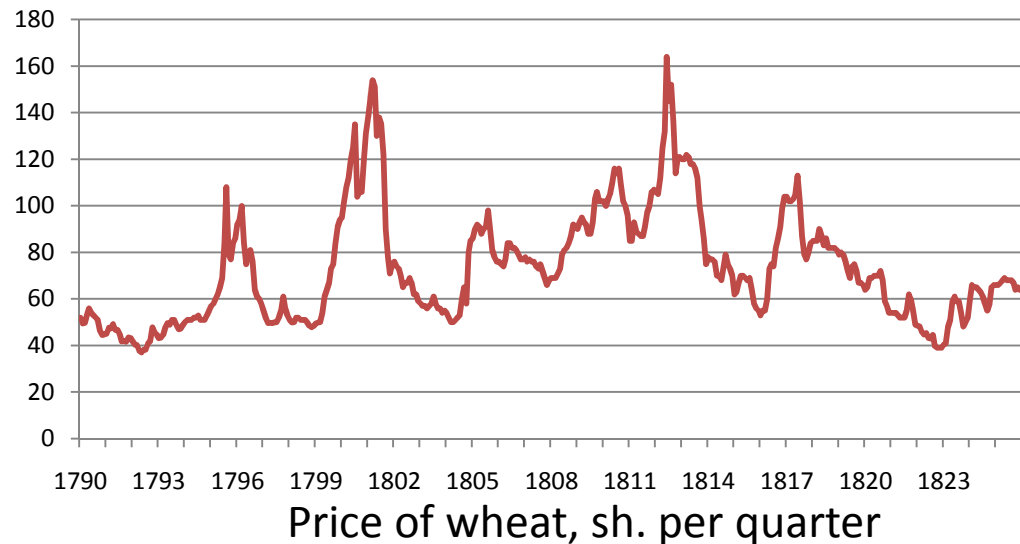
Period	North-West Corner (England, Netherlands, Flanders)	Mediterranean (France, Spain, Italy)	Central and Nordic (Germany, Switzerland, Scandinavia)	Eastern (Russia, Poland, Czech Lands, Hungary)
1500-49	7.4	6.7	4.0	3.9
1550-99	7.3	n/g	4.4	4.3
1600-49	6.7	n/g	4.5	4.0
1650-99	9.3	6.2	4.1	3.8
1700-49	n/g	6.3	4.1	3.5
1750-99	10.1	7.0	5.1	4.7
1800-20	11.1	6.2	5.4	n/g

Output per worker in agriculture



Which factors caused the Agricultural Revolution?

- Demand factors
 - population growth?
 - price and incomes?



- Supply factors
 - More land available for cultivation?
 - Innovations?
 - Short-term pressures?
 - Long-term structural changes in markets?

1. Land Markets

Enclosure

- Farm land in medieval England organised in open fields and commons (see Lecture II)
- Enclosed farming
 - arable land: privatisation
 - pasture: enclose and divide up common wastes
- Outcome of enclosure
 - communal rotations and grazing were abolished
 - owner had an exclusive control over the property
- Enclosing by parliamentary acts in the 18th C
 - Hammonds: “the suffrages were not counted but weighted”

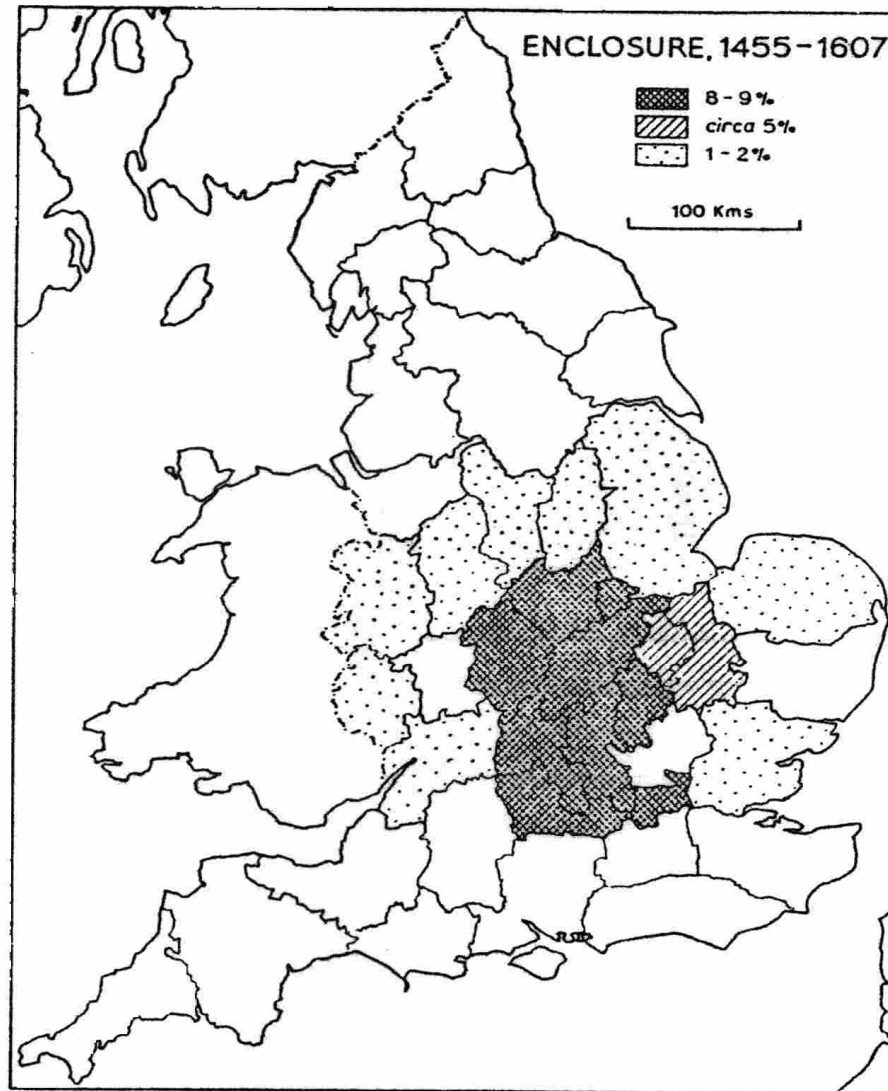


Fig. 47 Enclosure, 1455-1607

Recorded in the proceedings of the Courts of Exchequer, the Court of Chancery, the Star Chamber and the Court of Requests. Based on: (1) A. H. Johnson, *The disappearance of the small landowner* (Oxford, 1909), 48-9, and map at end; (2) E. F. Gay, 'Inclosures in England in the sixteenth century', *Quart. Jour. Economics*, XVII (1903), 585-6.

- Enclosure was essential for investments and modernisation, but did it boost output?
- Contemporaries:
 - tragedy of the commons solved
 - consolidation of arable reduced costs
- Neeson (1993): no tragedy of the commons, enclosure political
- Allen (1992): 18C enclosures didn't improve agricultural productivity
- Problems with these arguments?

The rise of the great estate

- Farm size grew
 - small freeholds amalgamated into large
 - copyholds not renewed
- Revolution of land tenure
 - new social structure: rich land owner, tenant farmer and landless labourer
- Large farms able to pay higher rent
 - labour costs smaller



2. Rural Capital Markets

- Capital was held by land owners (structures) and by lesser extent, tenants (livestock, etc)
- Rural credit markets reduced risks by some extent
 - p^{agr} fluctuated
 - crop bought beforehand (forward derivative)
 - insurance
 - risk spreading between the land lord and tenant
- Mortgages enabled large investment projects
- Agricultural surplus generated new capital
 - debatable whether this helped to finance the industrial revolution

3. Labour markets

- Employment opportunities for men ↑ and women ↓

	1700	1800	1850
Men	612	643	985
Women	488	411	395
Boys	453	351	144
Total	1553	1405	1524

Allen (1994)

- Flexible and mobile labour markets
 - temporary employment during harvests
 - landless labourers were free to move to industrialising areas

4. Product markets

- Urbanisation: 17.5% of population lived in towns of 10,000 or more in 1750
 - towns dependent of national and inter-regional markets for cereals and some live stock
- Open-market retail was no longer the primary focus for trade
- Flexible national markets
 - wholesalers, middle-men, central storages
 - dependent on transport → lecture VIII
- Increasing living standards changed consumer preferences

Effects of structural changes

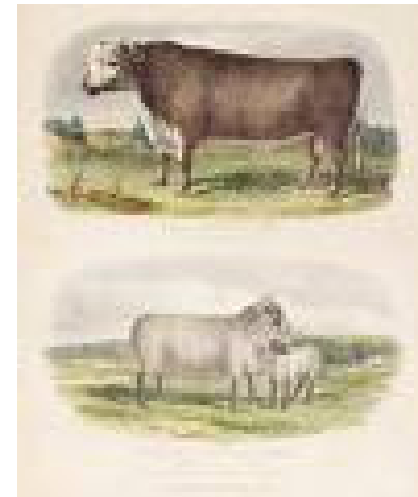
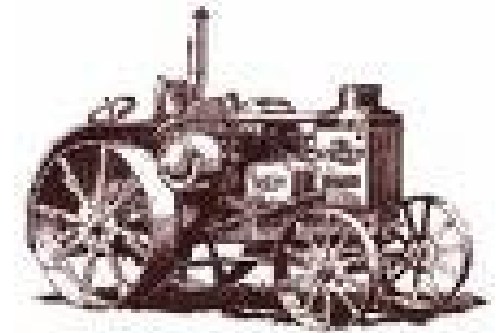
- Farms could be adjusted to optimal size and scale
 - Land could pass freely to most productive users
 - Technical improvements permitted and profitable
- Despite a rapidly growing population food needs were met without recourse to substantial imports except during the most severe harvest crises



Innovations

- Improvements in seeds
- Manuring
- Cultivation of legumes, fallow eliminated
- Draining and marling
- Farm machinery
- Regional specialisation
- Herds and flocks became more productive

→ **productivity** ↑



How did transformation of agrarian economy affect industrialisation?

The potential linkages:

1. Markets for manufacturers
2. Generating new capital
3. Releasing capital
4. Releasing labour
5. Increasing output
6. Feeding urban population



1) A market for manufacturers?

- Did agriculture increase rural market demand for manufactured goods?
 - still the largest sector of the economy
- Crafts (1985), O'Brien (1985):
 - the consumption of manufactures increased about 1/3 by agriculturalists
 - BUT industrial production increased more than 3x

2) A source of capital?

- Agricultural surplus = $p \cdot Y^{agr} - w \cdot L^{agr} - r \cdot K^{agr}$
- Crafts (1985): the agricultural savings financed little non-agricultural investment
- 'Indirect' investments
 - financial intermediation through country banks: deposits from landlords → loans to entrepreneurs

3) The release of capital?

- The agriculture did not release capital by reducing its demand for investments
- Rising agricultural output as a result of investments
- Total capital in English and Welsh agriculture (£million): 1700: 183 → 1750: 195 → 1800: 242 → 1850: 353 (source: Allen)
- BUT agriculture supplied more raw material, especially textile industry (wool, linen)

4) The release of labour?

- Answer sensitive for adopted definition
- Male employment constant or increasing
- Women and children 'freed' to be reemployed in industry
- Crafts (1985): Output per worker tripled and the share of the workforce in agriculture declined
- BUT structural employment in rural areas, friction

5) Increasing output?

- The total output increased as a result of agriculture

Growth rate of agr. Output	1700-1800	1800-1850
Deane and Cole	0.4%	1.5%
Crafts	0.5%	1.2%
Population	0.5%	1.1%

- Measured by valuing the production of the various farm products with a set of constant prices
- Production and consumption per head declined **during** the Industrial Revolution
- Agriculture revolutionarised **before** the Industrial Revolution

6) Feeding urban population

- Agriculture supplied foodstuffs to permit growth of urban populations
 - specialisation
- National and integrated regional food markets
- Improvements in food processing
 - food storage capacity
 - large scale baking

Conclusions

- Agriculture revolutionarised before the Industrial Revolution and population growth
- Agriculture remained the largest sector of the economy both in Britain and in Europe
 - output of agriculture still increased more than industrial production in absolute terms
 - BUT manufacture, investments in industrial production and its share of labour force grew faster in relative terms than agriculture.

Useful reading

- Floud, R., Johnson, P. (2004): The Cambridge economic history of modern Britain. Cambridge University Press. (Ch4)
- King, s., Timmins, G. (2001): Making sense of the Industrial Revolution. Manchester University Press. (Ch6)
- Overton, M. (1996): Agricultural revolution in England : the transformation of the agrarian economy 1500-1850. Cambridge : Cambridge University Press.
- O'Brien, P.K. (1977): "Agriculture and the Industrial Revolution". Economic History Review, 30(1): pp. 166-181. Marshall Library Journals Section and also online via JSTOR
- Allen, R.C. (1992): Enclosure and the yeoman. Oxford : Clarendon Press. Marshall : Reserve 75 A 78
- Neeson, J.M. (1996): Commoners : common right, enclosure and social change in England, 1700-1820. Cambridge : Cambridge University Press. Marshall : Reserve 75 A 57
- Shaw-Taylor, Leigh (2001): "Parliamentary enclosure and the emergence of an English agricultural proletariat". Journal of Economic History, 61(3): pp. 640-662. Marshall Library Journals Section and also online via JSTOR