Economics 301Y1:
The Economic History of Later-Medieval and Early-Modern Europe, 1250 - 1750

Topic No. 9 [16]:
The Social Costs of Agricultural Modernization:

The Tudor-Stuart Enclosures and the ‘New Husbandry’ in England
ca. 1480 - ca. 1700

Within each section, all publications are listed in chronological order by the date of original publication (when that can be ascertained), except for some collections of essays.

Part I:
The Enclosures of Common Fields: the Economic and Social Aspects of Early-Modern English Rural Society (Landlords and Peasants)

A. The Enclosure Movement and Agrarian Change in Early-Modern England:


   Documents, with commentary and analysis, of royal commissions investigating enclosures in this period (reign of Henry VIII).


   This is the classic study on the problem of enclosures, combining traditional trade models (now in disfavour) with his own thesis on ‘emergent agrarian capitalism.’ Read at least Stone's introduction, Tawney's own introduction in Part I, chapter 1; and Part II, chapter 1; and Part III, chapter 2 (General Conclusions).


  (e) Peter Bowden, ‘Agricultural Prices, Farm Profits, and Rents’, (chapter 9), pp. 593-695.


Partly relevant for the period under discussion, in that he shows that the the later
17th and early 18th centuries was the era marking the greatest diminution in the holdings of the small farmer.


A trenchant rebuttal of Tawney (1912). By no means easy reading, with its emphasis on legal questions. But read at least pp. 17-31, 94-136.


An important article. He places the beginnings and major phase of Enclosures, i.e. of the Tudor era, well before any demographic upswing; and explicitly or sometimes more implicitly attributes enclosure to the economic consequences of the late-medieval demographic decline and stagnation.


Note: Their attack on the older, traditional views linking enclosures with the cloth export trade is seriously undermined by two critical faults: (1) an unrepresentative series of wool prices (from the bishopric of Durham, quite unrelated to the areas enclosed, which were chiefly in the Midlands); and (2) by a faulty econometric model.


* 27. Donald N. McCloskey, ‘The Economics of Enclosure: A Market Analysis’, and also his ‘The Persistence of English Common Fields’, in W.N. Parker and E.L. Jones, ed., *European Peasants and Their Markets: Essays in Agrarian Economic History* (Princeton, 1975), pp. 123-60 and 92-120, respectively. This chiefly pertains to the later enclosures, of the 18th century, but the analysis is important for this period as well.


Unfortunately, this book, written by a geographer, is less useful to the historian than it would appear, since it treats various aspects of common field systems, enclosures, and land use by various regions of England over the entire four century period, chapter by chapter.

33. J.P. Cooper, ‘In Search of Agrarian Capitalism’, Past and Present, No. 80 (August 1978), 20-65. One of many attacks on Brenner’s article (see the preceding).


The latest and most provocative thesis on English enclosures, contending that the major period of English enclosures was not the 16th or the 18th centuries, but the in between period of the 17th century. Note, however, that the first half of the 17th century (or up to the 1640s) encompasses the latter part of the ‘traditional’ Tudor-Stuart era of enclosures; but the later 17th and early 18th centuries have also traditionally been viewed as an ‘in between’ period of few enclosures. Wordie would agree that there was some diminution in the rate of enclosures ca. 1700-1740s.


58. Harriet Bradley, *The Enclosures in England: an Economic Reconstruction* (Kitchener:


75. Edward Martin and Max Satchell, ‘Wheare most inclosures be’: East Anglian Fields: History, Morphology and Management (Ipswich: East Anglian Archaeology, 2008).

B. The Open or Common Fields under Manorialism: Historical and Economic Analyses


to the question of medieval common fields, particularly since McCloskey subsequently became a very major participant in this debate. See below nos.


** 29. William N. Parker and Eric L. Jones, eds., *European Peasants and Their Markets: Essays in Agrarian Economic History* (Princeton, 1975). See the following essays:


Challenges McCloskey's thesis in nos. 27 and 30.


   (b) H. S. A. Fox, ‘Approaches to the Adoption of the Midland System’, pp. 64 - 111.
   (c) Bruce Campbell, ‘Commonfield Origins: The Regional Dimension’, pp. 112-29.
   (d) Robert Dodgshon, ‘The Interpretation of Subdivided Fields: A Study in Private or Communal Interests?’ pp. 130-44.


47. H. S. A. Fox, ‘The Alleged Transformation from Two-field to Three-field Systems in


C. **Enclosure, Peasants, and the Lower Classes: Problems of Rural Poverty and Vagrancy**


42. Margaret Yates, ‘Change and Continuities in Rural Society from the Later Middle Ages to the Sixteenth Century: the Contribution of West Berkshire’, *The Economic History*

D. Other Studies on the Structure of Landholding and Related Topics


5. Lawrence Stone, ‘The Elizabethan Aristocracy: A Restatement’, Economic History Review,

7. H. J. Habakkuk, ‘The Long Term Rate of Interest and the Price of Land in the Seventeenth Century’, *Economic History Review*, 2nd ser. 5 (1952), 26-


24. Lawrence Stone, ‘Social Mobility in England, 1500-1700’, and
Alan Everitt, ‘Social Mobility in Early Modern England’, both in:


41. Lloyd Bonfield, ‘Marriage Settlements and the ‘Rise of Great Estates’: the Demographic


76. Pamela Nightingale, ‘Knights and Merchants: Trade, Politics and the Gentry in Late


E. English Overseas Trade in the 15th and 16th Centuries: The Role of the Woollen Cloth Trade in the Tudor-Stuart Enclosures


   (a) H.L. Gray, ‘English Foreign Trade from 1446 to 1482’, pp. 1-38.


a) Herman Van der Wee, ‘Structural Changes in European Long-Distance Trade, and Particularly in the Re-export Trade from South to North, 1350 - 1750’, pp. 14 - 33.


**F. The Wool-Based Textile Industries in England: the Old and New Draperies**


7. Astrid Friis, Alderman Cockayne's Project and the Cloth Trade (Copenhagen, 1927).


* 29. Herbert Heaton, The Yorkshire Woollen and Worsted Industries from the Earliest Times to the Industrial Revolution, 2nd edn. (Oxford, 1965), Chapters 1-3. [The first edition was published in 1920; but this edition has so substantially revised the original that there is no point citing it.]


41. N.B. Harte and K.G. Ponting, eds., *Textile History and Economic History: Essays in Honour of Miss Julia de Lacy Mann* (Manchester University Press, 1973). In particular:


   a) Patrick Chorley, ‘The Evolution of the Woollen, 1300 - 1700’, pp. 7-34
   c) Robert S. Duplessis, ‘One Theory, Two Draperies, Three Provinces, and a


90. John Munro, ‘Medieval Woollens: Textiles, Textile Technology, and Industrial
30


Part II:

‘The New Husbandry’: Technological and Organizational Changes in Early-Modern English Agriculture:

A. Agrarian Change in Western Europe, 14th to 18th Centuries (General):


B. The Netherlands: Crop Rotations and Convertible Husbandry


   (b) E. Van Cauwenberghe and H. Van der Wee, ‘Productivity, Evolution of Rents, and Farm Size in the Southern Netherlands Agriculture from the 14th to the 17th Century’, pp. 125-62.
   (c) C. Vandenbroeke and W. Vanderpijpen, ‘The Problem of “Agricultural Revolution' in Flanders and Belgium: Myth or Reality?” pp. 163-70.


C. **Agrarian Technology and Agrarian Change in Medieval England, to ca. 1500: the General Background**


* 45. Bruce M. Campbell, ‘Agricultural Progress in Medieval England: Some Evidence from Eastern Norfolk’, Economic History Review, 2nd ser. 36 (Feb. 1983), 26-47. See also the following:


53. Richard M. Smith, *Land, Kinship and Life-cycle* (Cambridge, 1984). Collected essays; see in particular:

  f) Christopher Dyer, ‘Changes in the Link Between Families and Land in the West Midlands in the Fourteenth and Fifteenth Centuries’, pp. 305 - 12.


60. R. H. Hilton, Class Conflict and the Crisis of Feudalism: Essays in Medieval Social History (London, 1985). See in particular the following (reprints):
   a) ‘Old Enclosure in the West Midlands: A Hypothesis about Late-Medieval Development’, pp. 36-47.
   c) ‘Reasons for Inequality Among Medieval Peasants’, pp. 139-51.
   e) ‘Was There a General Crisis of Feudalism?’ pp. 239-45.


66. T. H. Aston, ed., Landlords, Peasants and Politics in Medieval England (Cambridge, 1987). Essays reprinted from Past & Present. The following are relevant to this topic:


   (a) Mark Overton and Bruce Campbell, ‘Productivity Change in European Agricultural Development’, pp. 1 - 50.


100. Bruce M.S. Campbell, James A. Galloway, Derek Keene, and Margaret Murphy, A Medieval Capital and Its Grain Supply: Agrarian Production and Distribution in the London Region c. 1300, Historical Geography Research Series no. 30 (London: Institute of British Geographers, 1993).


D. Agrarian Change in Early-Modern England, ca. 1500 - ca. 1750: General Surveys


E. *Agrarian Change, Demographic Changes, and Agrarian Technology in Early-Modern England, ca. 1500 - 1750: Monographs, Essays, and Articles on the Origins of the ‘Agricultural Revolution’*


   (a) Joan Thirsk, ‘The Farming Regions of England’, 1-112. (Chapter 1)
   (b) Joan Thirsk, ‘Farming Techniques’, pp. 161-99. (Chapter 3)
   (c) Joan Thirsk, ‘Enclosing and Engrossing’, pp. 200-56. (Chapter 4)
   (d) Gordon Batho, ‘Landlords in England’, pp. 256 - 75. (Chapter 5)
   (e) Gordon Batho, ‘Nobleman, Gentlemen, and Yeomen’, pp. 276 - 305. (Chapter 5)
   (g) Alan Everitt, ‘Farm Labourers’, pp. 396-467. (Chapter 7)
   (h) Alan Everitt, ‘The Marketing of Agricultural Produce’, pp. 466 - 592. (Chapter 8).
   (i) Peter Bowden, ‘Agricultural Prices, Farm Profits, and Rents’, pp. 593-695 (Chapter 9); and also his Statistical Appendix, pp. 814 - 870. See also Bowden (1990).

   (b) Lord Ernle (E.R. Prothero), ‘Obstacles to Progress’, pp. 49-65. Reprinted from E.R.


31. W.E. Minchinton, Essays in Agrarian History, 2 vols. (1968). In Vol. I, which covers this period, see:

(a) M.K. Bennett, ‘British Wheat Yield per Acre for Seven Centuries’, pp. 53 - 72. Reprinted from Economic History, 3 (February 1934), 12-29.


(b) Paul Brassley, ‘Northumberland and Durham’, pp. 30 - 58.

(c) David Hey, ‘Yorkshire and Lancashire’, pp. 59 - 88.


(a) Peter Bowden, ‘Agricultural Prices, Wages, Farm Profits, and Rents’, pp. 1 - 118.


(c) David Howell, ‘Landlords and Estate Management in Wales’, pp. 252 - 297.


This article refers to later 18th and early 19th century enclosures; but it is technologically very relevant for this topic. And well worth reading.


   (a) Mark Overton and Bruce Campbell, ‘Productivity Change in European Agricultural Development’, pp. 1 - 50.
   (c) Gregory Clark, ‘Labour Productivity in English Agriculture, 1300 - 1860’, pp. 211 - 35.


E. **Documents on Enclosures and the ‘New Husbandry’**


Vol. II: ‘High Prices and the Coinage’, pp. 176-203;
   ‘Vagrancy and Poor Relief’, pp. 296-369.

   ‘Poverty and Vagabonds’, pp. 405-58.


QUESTIONS FOR DISCUSSION

1. How was medieval farming organized and conducted in northern Europe:
   (a) How did the Common and/or Open Field system operate?
   (b) How did the two- and three-field systems operate?
   (c) What were the relationships between arable and pastoral (livestock) farming; how did such relationships involve the Open Field system?
   (d) What barriers to progress were inherent in these systems?

2. How, when, where, and why were new farming techniques of multiple crop rotation or intensive husbandry introduced into late-medieval and early-modern regions of the Low Countries?

3. What changes in farming techniques and in crops were introduced into England in this era, 1450-1650. Were they introduced because of enclosure? Was enclosure necessary for such new techniques? What was the significance of the following innovations:
   (a) Convertible husbandry? What are its advantages over open-fields?
   (b) Multiple crop rotations? How did they work; and how in particular did they lead to the elimination of the fallow? How were they related to convertible husbandry? How did the combination of the two resolve the traditional conflicts between arable and pasture?
   (c) Floating Meadows: when, where, and how were they introduced?
   (d) Chalking and marling: what are the differences?
   (e) What new crops were introduced in early-modern England?

4. What factors do you believe were more powerful in promoting the adoption of new techniques, apart from Enclosures: price-cost changes, demographic factors, growth of urban markets? Did changes come more during periods of agrarian boom or agrarian recession? During periods of falling or of rising grain prices in particular?

5. Did some or all of the new farming techniques require enclosed large-scale farms: in the Low Countries; in England?

6. What were the social benefits and costs of the traditional open-field or common-field system of farming for the peasant tenants of a manorial village in the Tudor-Stuart era?

7. Where did enclosure take place in Tudor-Stuart England? In what types of counties? Was enclosure chiefly for pastoral (livestock) or arable farming? What counties were more likely to be enclosed for pasture? For arable farming?

8. What brought about Enclosures in Tudor England? Consider the following sets of factors:
   a) demographic factors: population increases, or earlier population decline. Responses to over or under-population? If the latter, then why didn't enclosures occur earlier?
   b) commercial factors: the expansion of the woollen cloth industry and trade; increased urban demands for foodstuffs, etc.
   c) the inflationary consequences of the ‘Price Revolution’ in the 16th century: but see also demographic factors in a, above.
   d) The ‘Rise of the Gentry’: according to the Tawney-Trevor Roper debates.
   e) Changes in economic and social attitudes.
   f) Other factors affecting land-tenures and land-ownership?

9. Were enclosures undertaken in Tudor-Stuart England more for arable (i.e. wheat), or for pasture (i.e. wool and livestock for meat), or for some mixture of the two? In what periods? Why?
10. Who undertook enclosures -- and who directed, operated, and operated engrossed and enclosed farms? Did tenants themselves undertake enclosures: peasants, ‘yeomen’, or gentry tenants? Did gentry and noble landholders who undertook enclosures operate the farms directly, or did they lease them to tenants who farmed them?

11. Who gained and who lost by enclosure? What are the chief differences in the social consequences that you would expect to find between enclosure of the commons and wastes, and engrossing and enclosure of the tenancy strips in the arable fields?

12. What is the difference between enclosing and engrossing; what are the differences in the economic and social consequences? Under what circumstances and in what type of agriculture would you expect engrossing and/or enclosure: (a) to displace labour, (b) to require additional labour.

13. Was ‘depopulation’ a serious consequence of Tudor-Stuart enclosures? In what periods? In what counties or areas of England in particular? How many appear to have been affected? Were there any rural revolts?

14. What types of peasants or farmers were most likely to be dispossessed by engrossing and enclosures, or to suffer significant losses of land and rights to the use of the commons: freeholders, copyholders by inheritance, copyholders for ‘lives’ [three ‘lives’ or generations], copyholders for life, copyholders at will, cottagers. Answer this question also in terms of: tenants-in-chief and those large tenants who hired servants and labourers; those tenants who hired a few ‘servants’ to supplement family labour; those tenants who relied just on the labour of the family; those who hired themselves or members of their family out as servants and labourers to other farmers; those who had industrial by-employment (e.g. in textiles).

15. Who were the cottagers? What were their economic functions and social status? What rights did they have under traditional manorialism? What happened to them during the Tudor-Stuart enclosure movement?

16. What happened to those who were dispossessed by engrossing and enclosure in this era? Consider the following possibilities: hired agricultural labourers; part-time or full time employment in rural industries (textile, mining, metallurgy, etc.); emigration to the towns for employment in industry or commerce, etc.; vagabondage.

17. In what ways did enclosure increase agricultural productivity, apart from direct gains from the new techniques? In what ways, directly and indirectly, did enclosure contribute to the economic development of Tudor-Stuart England?

18. Who ‘captured the rent’ (economic rent) on common or open-field lands, within manorial jurisdiction? Who ‘captured the rent’ on enclosed land? To the extent that economic rents increased on enclosed lands, how were those gains in fact shared between landlord and tenants? Did the latter benefit at all from enclosure, in this respect?

19. Which provided more efficient farming: open-field or enclosed lands? Were enclosures ‘necessary’ for agrarian improvements and economic advancement?

20. In particular, were enclosures either necessary or desirable for the diffusion/implementation of technological changes, more advanced crop rotations, convertible husbandry, floating meadows, etc. For the application of greater amounts of capital?

21. Why did common or open field farming persist for so long in England? What advantages did it retain (economically and socially) into the early-modern period? Why did this system give way to enclosures? Did such conversions involve coercion, force, or willing agreement by tenants? Or did it involve all three, according to the type of land subject to enclosure, the region, and the time period?
APPENDIX A: LANDLORDS, PEASANTS, AND TENANTS
in English Agriculture, 15th to 18th Centuries

A. THE YEOMANRY: PEASANT FREEHOLDERS

- The wealthier peasants (with their own plough-teams) who either owned their lands outright, or, more commonly, rented them, with unconditional rights of inheritance, for nominal cash ‘quitrents’ -- so that they were free of any other obligations to the landlord. By statute law, from the 1440s, those freeholders holding land worth 40s. or more a year were entitled to sit on royal Common Law juries and to elect members of Parliament (House of Commons).
- According to Mingay, their share of English agricultural land rose from 20% of the total in 1436 to 27% in 1690; and many of them managed to rise into the Gentry.

B. YEOMEN AND PEASANT LEASEHOLDERS:

- Generally not a separate or distinct social class, but a group including yeomen, other free peasants, and peasants of servile ancestry, all of whom rented or leased manorial domain (demesne) lands by a written lease or mutually agreed upon rental contract, specifying the money rent and other conditions of rental for a fixed number of years.
- For most though not all of these leaseholders, the lands so held were in addition to their other lands. Leasehold lands could revert to the landlord at the expiry of the lease, especially if a new rental could not be negotiated.
- Increasingly the leaseholders comprised those who rented lands that had been enclosed by landlords, and withdrawn from the manorial open/common field systems.

C. COPYHOLDERS OR CUSTOMARY TENANTS

- Copyholders or customary tenants were those peasants within the manorial system whose ‘tenure was by copy of the manorial court roll according to the custom of the manor.’
- These were peasant tenants who held lands that were once considered servile, lands that had owed servile obligations; and most of these peasants probably had servile ancestries.
- Their tenancies were normally in the form of scattered, intermingled strips in the open arable fields, with rights to use the village Commons and meadowlands.
- While their servile ancestors had virtually guaranteed rights of inheritance that accompanied their bondage (‘bond men’), either to the lord or to his estate, the property rights of their sons, though normally only the eldest son, had always been conditional upon the payment of inheritance taxes: entry fines and heriots, paid by the heir on succeeding to the father's tenancy.
- With the gradual decay of English serfdom, many peasants gained more and more personal freedom at the expense of their implicit inheritance and property rights, so that we find the following
categories of customary tenants in early-modern England:

- **Customary tenants with unconditional inheritance rights**: these were very few in number, but with property rights almost as secure as those of freeholders; and it was virtually impossible to evict them (though they could be ‘bought out’). They generally owned their own plough teams; and frequently they were amongst those actively engrossing and enclosing.

- **Customary Tenants for ‘three lives’**: their inheritance rights (still conditional upon paying entry fines) were customarily guaranteed only for three generations: from father to son to grandson. But in many counties, a ‘customary life’ came to be defined as seven years, so that a tenant holding copyhold for three lives had secure property rights for only 21 years.

- **Customary Tenants for ‘two lives’ and those ‘for life’**: with tenancies and inheritance rights defined as above. For some that meant a full lifetime of secure property -- for themselves and their eldest son, if for ‘two lives’. But for others, secure tenure was guaranteed for only 14 or 7 years.

- **Customary Tenants ‘at will’**: those smallholders descended from the lower servile strata, with almost no security of property rights and inheritance, though inheritance rights would normally be granted, subject of course to entry fines, which were generally much more arbitrary than those imposed on other copyholders. They generally lacked ploughs and plough teams. Of the copyholders, these were the easiest to evict with enclosures, both in Tudor times and in the 18th century.

D. **COTTAGERS OR ‘COTTARS’**

- these were small peasants, without ploughs, who derived a good part of their income from wages: as hired agricultural labourers or as industrial workers, especially in textiles.
- Of both servile and free origin, many of them descendent from landless labourers, they accounted for perhaps 30% of population of the Midlands, from the 13th to 18th centuries. They generally held only a few tenancy strips in Open Fields, but had enjoyed free access to Village Commons.
- They were generally the first to be squeezed out by enclosure of the village Commons; and they were certainly by far the easiest to dispossess in all subsequent enclosures. Their fate was to become a true agricultural proletariat.
APPENDIX B: ON WOOL PRICES, CLOTH EXPORTS, AND ENCLOSURES:

A Reply to Cohen and Weitzman's ‘Refutation’ of the Wool-Based Theories on Tudor Enclosures:

In two articles published in 1975, Jon Cohen and Martin Weitzman attack the thesis that ‘Tudor enclosures were a response to a rise in the demand for wool’ [as argued by Tawney, Bowden, Ramsay, etc.], by stating that:

A major problem with the wool trade explanation is that the price data simply do not support the argument. If the analysis were correct, we would expect the price of wool to rise relative to the price of grain. On close inspection of the available data we can find no systematic difference in the trend of wool and grain prices between 1450 and 1550. If anything, the price of wool declines relative to the price of grain. The data so blatantly contradict the standard analysis that it is difficult to understand how it has managed to maintain such general acceptance.

And in their footnote (n. 62, p. 318) that state that: ‘a regression was run of the form Pw/Pg = a + but for the 101 years from 1450 to 1550 where Pw is the price of wool, Pg is the price of grain, and t is time. The coefficient b was negative with a t-statistic greater than three.’ Their data were based on tables I and V in Bowden's statistical appendix in Thirsk (1967).

My Response: Apart from their failure to distinguish between the earlier (1460-1530) and later enclosures (1580-1615), they have adopted a method that, in my view, is deficient both in approach and its argument, explicit and implicit. In ascending order of importance:

i) their use of time-series regression analysis was invalid: in trying to interpret the behaviour of those engaging in enclosure in the later 15th century on the basis of a times series half of whose data came from the subsequent period, i.e. the first half of the sixteenth century. In any event, it is absurd to regress price changes against time for a full century and then expect to find a statistically significant trend line.

ii) had they regressed the price data for the period 1450-99, i.e. just for the second half of the 15th century when the major enclosures evidently took place, they would have found an entirely different result:

\[ Y = \frac{Pw}{Pg} (1450-99) = a + but = 0.9327 + 0.0049 \text{ (with } R = 0.1211) \]

And even more favourable results can be obtained for shorter periods, before 1500, as in the accompanying table.

iii) The price data are, in any event, not really relevant to the issue of Tudor Enclosures in the Midlands district: i.e. concerning the issue of converting arable to pasture in this region, because they are not from the Midlands: the grain data are heavily weighted by Exeter wheat prices (i.e. from Devonshire, in the South-West); and the wool prices are entirely from the Bishopric of Durham in the North-East. Obviously for any such regression to have validity it must involve grain and wool prices in the specific districts of the Midlands that underwent enclosure primarily to provide more pasture land for wool production: i.e. Leicestershire, 1

---

iv) **Their wool-price data are even less relevant, furthermore, because:**

(1) Durham wools were amongst the very worst produced in England -- only Cornish wools were worse: Durham wools, exempted from the Staple, were normally not exported (except occasionally to Zealand, to be made into cheap cloths for the poorer classes); and

(2) they were certainly never used to make the medium to fine quality woollens that constituted the bulk of English cloth exports in this era.

v) Otherwise, I would make the following observations to respond to the Cohen-Weitzman challenges to the traditional market model:

(1) That price changes over time reflect more and more the consequences of such changes (i.e. the evident shift from arable to pasture).

(2) Production decisions and decisions on land utilization are based just as much on changes in factor costs, and relative factor costs, as in changes in relative prices of alternative products being produced.

vi) Subsequently, of course, from the later 16th century we find the slow diffusion of convertible husbandry, which expanded both livestock production (including wool) and grains -- so that they were more and more joint products, i.e. less and less alternative products in enclosures.

vii) But again, in analysing enclosures, one must be very careful to distinguish between the periods and regions of enclosures.

viii) Finally, the suggestion that enclosures caused the woollen cloth trade boom is absurd: that export boom was largely produced by external trading factors, involving South Germany and the Low Countries especially (as I have tried to outline briefly above: more on foreign trade below).
Regressions of Bowden's Grain and Wool Price Data

Linear Regression Wool Prices/Grain Prices against time:

\[ \frac{Y}{P} = \frac{P_{w}}{P_{g}} = a + b \times T \]

- \( P_{w} \) = Price of Wools (in the Bishopric of Durham)
- \( P_{g} \) = Price of Grains (Wheat, Rye, Barley, Oats) dominated by Exeter wheat
- \( T \) = time in years, from 1450 to 1519 (1450-99 = price index base 100)

<table>
<thead>
<tr>
<th>Decade</th>
<th>a</th>
<th>b</th>
<th>R</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1450-59</td>
<td>0.7149</td>
<td>0.0307</td>
<td>0.5414</td>
<td>0.2931</td>
</tr>
<tr>
<td>1460-69</td>
<td>1.1563</td>
<td>0.0005</td>
<td>0.0034</td>
<td>0.00001</td>
</tr>
<tr>
<td>1470-79</td>
<td>1.0970</td>
<td>-0.0052</td>
<td>-0.1020</td>
<td>0.0104</td>
</tr>
<tr>
<td>1480-89</td>
<td>0.9151</td>
<td>0.0250</td>
<td>0.3415</td>
<td>0.1166</td>
</tr>
<tr>
<td>1490-99</td>
<td>0.9314</td>
<td>0.0166</td>
<td>0.2608</td>
<td>0.0680</td>
</tr>
<tr>
<td>1500-09</td>
<td>0.6066</td>
<td>0.0556</td>
<td>0.7623</td>
<td>0.5811</td>
</tr>
<tr>
<td>1510-19</td>
<td>1.0986</td>
<td>-0.0110</td>
<td>-0.2766</td>
<td>0.0765</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Decade</th>
<th>a</th>
<th>b</th>
<th>R</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1450-69</td>
<td>0.7510</td>
<td>0.0268</td>
<td>0.4413</td>
<td>0.1221</td>
</tr>
<tr>
<td>1450-79</td>
<td>0.8724</td>
<td>0.0108</td>
<td>0.3103</td>
<td>0.0963</td>
</tr>
<tr>
<td>1450-89</td>
<td>0.9327</td>
<td>0.0049</td>
<td>0.2017</td>
<td>0.0407</td>
</tr>
<tr>
<td>1450-99</td>
<td>0.9695</td>
<td>0.0022</td>
<td>0.1211</td>
<td>0.0147</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Decade</th>
<th>a</th>
<th>b</th>
<th>R</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1450-1509</td>
<td>1.0191</td>
<td>-0.0008</td>
<td>-0.0518</td>
<td>0.0027</td>
</tr>
<tr>
<td>1450-1519</td>
<td>1.0025</td>
<td>0.0000</td>
<td>0.0024</td>
<td>0.0000</td>
</tr>
</tbody>
</table>
Table 1. THE POPULATION OF ENGLAND (AND WALES)

Quinquennial Demographic Data from Generalised Inverse Projection

<table>
<thead>
<tr>
<th>Year</th>
<th>England Population in millions</th>
<th>with Wales Population in millions</th>
<th>England: Life Expectancy at Birth</th>
<th>Intrinsic Growth Rate</th>
<th>Crude Birth Rate/1000 England only</th>
<th>Crude Death Rate/1000 England only</th>
</tr>
</thead>
<tbody>
<tr>
<td>1541</td>
<td>2.830</td>
<td>3.031</td>
<td>33.94</td>
<td>0.92</td>
<td>37.17</td>
<td>30.34</td>
</tr>
<tr>
<td>1546</td>
<td>2.908</td>
<td>3.115</td>
<td>38.82</td>
<td>1.42</td>
<td>37.88</td>
<td>25.98</td>
</tr>
<tr>
<td>1551</td>
<td>3.065</td>
<td>3.282</td>
<td>39.59</td>
<td>1.31</td>
<td>35.62</td>
<td>24.82</td>
</tr>
<tr>
<td>1556</td>
<td>3.213</td>
<td>3.440</td>
<td>22.38</td>
<td>-1.17</td>
<td>30.24</td>
<td>40.16</td>
</tr>
<tr>
<td>1561</td>
<td>3.036</td>
<td>3.251</td>
<td>36.66</td>
<td>0.97</td>
<td>37.06</td>
<td>26.70</td>
</tr>
<tr>
<td>1566</td>
<td>3.174</td>
<td>3.398</td>
<td>39.67</td>
<td>0.91</td>
<td>34.16</td>
<td>24.21</td>
</tr>
<tr>
<td>1571</td>
<td>3.310</td>
<td>3.545</td>
<td>41.06</td>
<td>0.77</td>
<td>32.37</td>
<td>22.73</td>
</tr>
<tr>
<td>1576</td>
<td>3.448</td>
<td>3.692</td>
<td>41.56</td>
<td>1.02</td>
<td>34.20</td>
<td>22.43</td>
</tr>
<tr>
<td>1581</td>
<td>3.631</td>
<td>3.889</td>
<td>42.70</td>
<td>1.27</td>
<td>34.12</td>
<td>21.56</td>
</tr>
<tr>
<td>1586</td>
<td>3.841</td>
<td>4.113</td>
<td>37.05</td>
<td>0.75</td>
<td>32.09</td>
<td>25.70</td>
</tr>
<tr>
<td>1591</td>
<td>3.938</td>
<td>4.217</td>
<td>38.05</td>
<td>0.81</td>
<td>32.12</td>
<td>24.75</td>
</tr>
<tr>
<td>1596</td>
<td>4.057</td>
<td>4.344</td>
<td>38.82</td>
<td>0.63</td>
<td>31.50</td>
<td>24.95</td>
</tr>
<tr>
<td>1601</td>
<td>4.162</td>
<td>4.457</td>
<td>38.53</td>
<td>0.75</td>
<td>33.24</td>
<td>24.77</td>
</tr>
<tr>
<td>1606</td>
<td>4.310</td>
<td>4.616</td>
<td>39.59</td>
<td>0.76</td>
<td>33.05</td>
<td>24.07</td>
</tr>
<tr>
<td>1611</td>
<td>4.476</td>
<td>4.793</td>
<td>36.79</td>
<td>0.41</td>
<td>31.60</td>
<td>26.14</td>
</tr>
<tr>
<td>1616</td>
<td>4.568</td>
<td>4.892</td>
<td>40.31</td>
<td>0.81</td>
<td>32.30</td>
<td>23.37</td>
</tr>
<tr>
<td>1621</td>
<td>4.745</td>
<td>5.081</td>
<td>33.39</td>
<td>0.11</td>
<td>30.91</td>
<td>28.85</td>
</tr>
<tr>
<td>1626</td>
<td>4.762</td>
<td>5.099</td>
<td>39.69</td>
<td>0.74</td>
<td>31.81</td>
<td>23.68</td>
</tr>
<tr>
<td>1631</td>
<td>4.926</td>
<td>5.275</td>
<td>39.72</td>
<td>0.71</td>
<td>31.66</td>
<td>23.80</td>
</tr>
<tr>
<td>1636</td>
<td>5.090</td>
<td>5.450</td>
<td>34.03</td>
<td>0.18</td>
<td>31.47</td>
<td>28.59</td>
</tr>
<tr>
<td>1641</td>
<td>5.130</td>
<td>5.494</td>
<td>36.32</td>
<td>0.43</td>
<td>31.97</td>
<td>26.79</td>
</tr>
<tr>
<td>1646</td>
<td>5.231</td>
<td>5.602</td>
<td>39.74</td>
<td>0.29</td>
<td>27.79</td>
<td>23.63</td>
</tr>
<tr>
<td>1651</td>
<td>5.308</td>
<td>5.684</td>
<td>39.14</td>
<td>0.31</td>
<td>28.55</td>
<td>24.22</td>
</tr>
<tr>
<td>1656</td>
<td>5.391</td>
<td>5.773</td>
<td>33.04</td>
<td>-0.60</td>
<td>25.74</td>
<td>28.68</td>
</tr>
<tr>
<td>1661</td>
<td>5.280</td>
<td>5.654</td>
<td>33.27</td>
<td>-0.38</td>
<td>28.22</td>
<td>28.92</td>
</tr>
<tr>
<td>1666</td>
<td>5.229</td>
<td>5.600</td>
<td>32.48</td>
<td>-0.47</td>
<td>28.53</td>
<td>30.03</td>
</tr>
<tr>
<td>1671</td>
<td>5.159</td>
<td>5.524</td>
<td>37.41</td>
<td>-0.04</td>
<td>28.40</td>
<td>26.25</td>
</tr>
<tr>
<td>1676</td>
<td>5.185</td>
<td>5.552</td>
<td>32.40</td>
<td>-0.39</td>
<td>28.91</td>
<td>30.75</td>
</tr>
<tr>
<td>1681</td>
<td>5.109</td>
<td>5.471</td>
<td>31.27</td>
<td>-0.26</td>
<td>30.32</td>
<td>32.14</td>
</tr>
<tr>
<td>1686</td>
<td>5.036</td>
<td>5.393</td>
<td>35.93</td>
<td>0.47</td>
<td>31.87</td>
<td>28.56</td>
</tr>
<tr>
<td>1691</td>
<td>5.094</td>
<td>5.455</td>
<td>36.35</td>
<td>0.42</td>
<td>30.05</td>
<td>28.06</td>
</tr>
<tr>
<td>1696</td>
<td>5.118</td>
<td>5.481</td>
<td>38.06</td>
<td>0.71</td>
<td>31.25</td>
<td>26.67</td>
</tr>
<tr>
<td>1701</td>
<td>5.211</td>
<td>5.580</td>
<td>38.47</td>
<td>0.83</td>
<td>32.06</td>
<td>26.39</td>
</tr>
<tr>
<td>1706</td>
<td>5.334</td>
<td>5.712</td>
<td>38.50</td>
<td>0.45</td>
<td>28.48</td>
<td>25.67</td>
</tr>
<tr>
<td>1711</td>
<td>5.382</td>
<td>5.764</td>
<td>36.89</td>
<td>0.34</td>
<td>29.47</td>
<td>26.77</td>
</tr>
<tr>
<td>1716</td>
<td>5.428</td>
<td>5.813</td>
<td>35.75</td>
<td>0.38</td>
<td>31.65</td>
<td>27.91</td>
</tr>
<tr>
<td>1721</td>
<td>5.503</td>
<td>5.893</td>
<td>35.49</td>
<td>0.39</td>
<td>32.80</td>
<td>28.21</td>
</tr>
<tr>
<td>1726</td>
<td>5.602</td>
<td>5.999</td>
<td>25.34</td>
<td>-0.95</td>
<td>31.16</td>
<td>36.99</td>
</tr>
<tr>
<td>Year</td>
<td>England: Life Expectancy at Birth</td>
<td>Crude Birth Rate/1000</td>
<td>Crude Death Rate/1000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------</td>
<td>-----------------------</td>
<td>-----------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>England only</td>
<td>England only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1731</td>
<td>5.414</td>
<td>36.34</td>
<td>35.13</td>
<td>27.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1736</td>
<td>5.599</td>
<td>35.26</td>
<td>33.79</td>
<td>28.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1741</td>
<td>5.723</td>
<td>34.27</td>
<td>31.71</td>
<td>28.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1746</td>
<td>5.782</td>
<td>36.47</td>
<td>32.68</td>
<td>27.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1751</td>
<td>5.922</td>
<td>39.77</td>
<td>32.97</td>
<td>24.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1756</td>
<td>6.149</td>
<td>38.12</td>
<td>31.87</td>
<td>25.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1761</td>
<td>6.310</td>
<td>35.37</td>
<td>33.48</td>
<td>28.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1766</td>
<td>6.449</td>
<td>36.19</td>
<td>33.88</td>
<td>27.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1771</td>
<td>6.623</td>
<td>39.09</td>
<td>34.90</td>
<td>25.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1776</td>
<td>6.913</td>
<td>37.74</td>
<td>35.76</td>
<td>26.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1781</td>
<td>7.206</td>
<td>35.81</td>
<td>34.86</td>
<td>27.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1786</td>
<td>7.434</td>
<td>38.97</td>
<td>36.89</td>
<td>25.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1791</td>
<td>7.846</td>
<td>37.92</td>
<td>37.17</td>
<td>26.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1796</td>
<td>8.256</td>
<td>38.93</td>
<td>35.51</td>
<td>24.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1801</td>
<td>8.671</td>
<td>40.02</td>
<td>37.60</td>
<td>24.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1806</td>
<td>9.232</td>
<td>40.58</td>
<td>37.90</td>
<td>23.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1811</td>
<td>9.864</td>
<td>41.25</td>
<td>39.18</td>
<td>23.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1816</td>
<td>10.628</td>
<td>40.84</td>
<td>39.48</td>
<td>23.54</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


For the 19th and 20th centuries, ever since the first official census of 1801, British statistics usually present the population for England and Wales combined together. I have myself estimated the probable combined population of England and Wales by dividing their data for England alone (which omits the county of Monmouthshire, now part of Wales) by the constant: 0.93383. This ratio is indicated in the latter Wrigley-Schofield (1980), on p. 557, as a note to their Table A5.3. All of the other data necessarily pertain to England alone; and you may prefer therefore to use just the English population data, omitting Wales.
## Table 2.

**Price Levels and Price Trends in England, 1450-1749 Mean Price Indices* and Mean Annual Rates of Price Changes, for 25-Year Periods.**

Mean of Price Indices for 1451-1475 = 100 (Base)*

<table>
<thead>
<tr>
<th>Quarter Century</th>
<th>Mean Price Index: <em>1451-75=100</em></th>
<th>Mean Annual Percentage Change in Price Index</th>
<th>Standard Deviation (s.d.)</th>
<th>Coefficient of Variation (s.d./Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1450-74</td>
<td>101.4</td>
<td>+0.08%</td>
<td>7.68</td>
<td>7.6</td>
</tr>
<tr>
<td>1475-99</td>
<td>104.6</td>
<td>+0.06%</td>
<td>18.52</td>
<td>17.7</td>
</tr>
<tr>
<td>1500-24</td>
<td>115.5</td>
<td>+1.47%</td>
<td>19.21</td>
<td>16.6</td>
</tr>
<tr>
<td>1525-49</td>
<td>168.8</td>
<td>+1.56%</td>
<td>29.57</td>
<td>17.5</td>
</tr>
<tr>
<td>1550-74</td>
<td>287.2</td>
<td>+0.20%</td>
<td>41.45</td>
<td>14.4</td>
</tr>
<tr>
<td>1575-99</td>
<td>401.6</td>
<td>+2.26%</td>
<td>94.71</td>
<td>23.6</td>
</tr>
<tr>
<td>1600-24</td>
<td>505.3</td>
<td>+0.69%</td>
<td>47.94</td>
<td>9.5</td>
</tr>
<tr>
<td>1625-49</td>
<td>595.6</td>
<td>+0.95%</td>
<td>81.48</td>
<td>13.7</td>
</tr>
<tr>
<td>1650-74</td>
<td>631.6</td>
<td>-0.42%</td>
<td>72.26</td>
<td>11.4</td>
</tr>
<tr>
<td>1675-99</td>
<td>616.7</td>
<td>+0.48%</td>
<td>74.01</td>
<td>12.0</td>
</tr>
<tr>
<td>1700-24</td>
<td>617.8</td>
<td>-0.09%</td>
<td>81.03</td>
<td>13.1</td>
</tr>
<tr>
<td>1725-49</td>
<td>587.6</td>
<td>-0.17%</td>
<td>51.00</td>
<td>8.7</td>
</tr>
</tbody>
</table>

* The Phelps Brown and Hopkins Price Index. See Sources for Table 2.
Table 3.
Price-Relatives of Charcoal, Timber, Industrial Products, Grains, and the Phelps-Brown & Hopkins ‘Basket of Consumables’ Index in Decennial Averages, 1530-9 to 1640-9

Average of 1530-9 = base 100

<table>
<thead>
<tr>
<th>Decade</th>
<th>Charcoal (Cambridge)</th>
<th>Timber (National)</th>
<th>Industrial Products</th>
<th>Grains: Rye, Wheat, Oats, Barley</th>
<th>Basket of Consumables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1530-9</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1540-9</td>
<td>122</td>
<td>115</td>
<td>115</td>
<td>116</td>
<td>124</td>
</tr>
<tr>
<td>1550-9</td>
<td>203</td>
<td>174</td>
<td>169</td>
<td>216</td>
<td>186</td>
</tr>
<tr>
<td>1560-9</td>
<td>217</td>
<td>178</td>
<td>198</td>
<td>196</td>
<td>180</td>
</tr>
<tr>
<td>1570-9</td>
<td>230</td>
<td>206</td>
<td>203</td>
<td>230</td>
<td>203</td>
</tr>
<tr>
<td>1580-9</td>
<td>270</td>
<td>247</td>
<td>209</td>
<td>282</td>
<td>230</td>
</tr>
<tr>
<td>1590-9</td>
<td>287</td>
<td>289</td>
<td>216</td>
<td>366</td>
<td>305</td>
</tr>
<tr>
<td>1600-9</td>
<td>320</td>
<td>335</td>
<td>233</td>
<td>348</td>
<td>306</td>
</tr>
<tr>
<td>1610-9</td>
<td>359</td>
<td>397</td>
<td>249</td>
<td>407</td>
<td>341</td>
</tr>
<tr>
<td>1620-9</td>
<td>345</td>
<td>450</td>
<td>240</td>
<td>399</td>
<td>333</td>
</tr>
<tr>
<td>1630-9</td>
<td>378</td>
<td>475</td>
<td>255</td>
<td>491</td>
<td>397</td>
</tr>
<tr>
<td>1640-9</td>
<td>535</td>
<td>524</td>
<td>278</td>
<td>488</td>
<td>398</td>
</tr>
</tbody>
</table>

Weighting of the Phelps Brown and Hopkins Price Index:

Farinaceous Foods (Grains) 20.0%
Meat and Fish 25.0%
Butter and Cheese 12.5%
Drink (Malt, Hops, etc.) 22.5%

Subtotal: Food 80.0%
Fuel and Light 7.5%
Textiles 12.5%

Subtotal: Industrial Goods 20.0%
Sources:


(b) Timber, industrial products, grains:


(c) ‘Basket of Consumables’:

Table 4.
THE EFFECTS OF CHANGING RELATIVE AREAS OF GRASS (LIVESTOCK-PASTURE) AND ARABLE (GRAIN CROPS) ON THE OUTPUT OF A 100-ACRE FARM: IN BUSHELS PER ACRE (WITH LIVESTOCK OUTPUT EQUIVALENTS)

Assumption: Farm Operating on a Three-Field System with 2/3 in Crops and 1/3 Fallow (Uncultivated, Land at Rest) each Year

<table>
<thead>
<tr>
<th>Grass Area in Acres</th>
<th>Grain Area in Acres</th>
<th>Fallow Area (at Rest): Acres</th>
<th>Manure Tons per Acre Arable</th>
<th>Grain Yield: Bu. per Acre</th>
<th>Total Grain Output Bu.</th>
<th>Stock Output in Equiv Bu.*</th>
<th>TOTAL OUTPUT IN BU.</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td></td>
<td>1,000</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>13.3</td>
<td>6.7</td>
<td>&gt;10.0</td>
<td>27.5</td>
<td>366</td>
<td>800</td>
<td>1,166</td>
</tr>
<tr>
<td>77</td>
<td>15.3</td>
<td>7.7</td>
<td>10.0</td>
<td>27.5</td>
<td>421</td>
<td>770</td>
<td>1,191</td>
</tr>
<tr>
<td>60</td>
<td>26.7</td>
<td>13.3</td>
<td>4.5</td>
<td>16.5</td>
<td>441</td>
<td>600</td>
<td>1,041</td>
</tr>
<tr>
<td>40</td>
<td>40.0</td>
<td>20.0</td>
<td>2.0</td>
<td>11.5</td>
<td>460</td>
<td>400</td>
<td>860</td>
</tr>
<tr>
<td>20</td>
<td>53.3</td>
<td>26.7</td>
<td>0.7</td>
<td>8.9</td>
<td>474</td>
<td>200</td>
<td>674</td>
</tr>
<tr>
<td>0</td>
<td>66.7</td>
<td>33.3</td>
<td>0.0</td>
<td>7.5</td>
<td>500</td>
<td>0</td>
<td>500</td>
</tr>
</tbody>
</table>

* Assumption: That the output of livestock products is equivalent to 10 bushels of grain per acre.

Table 5
THE BALTIC AND ENGLISH GRAIN EXPORT TRADES
AVERAGE ANNUAL EXPORTS IN QUARTERS (OF 8 BUSHELS)*
1600-49 TO 1700-49

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>BALTIC**</th>
<th>ENGLAND</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1600-59</td>
<td>719,250</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>1650-99</td>
<td>585,900</td>
<td>26,250</td>
<td>612,150</td>
</tr>
<tr>
<td>1700-49</td>
<td>325,500</td>
<td>453,600</td>
<td>779,100</td>
</tr>
</tbody>
</table>

* 1 Quarter = 8 bushels = 64 gallons of grain = 480 lb. (1 bu. = 60 lb.; 6 x 80 = 480 lb.)

* about 80% on the seaborne Baltic grain exports, on average, was carried in Dutch ships (a higher proportion in the earlier than in the later periods).

Table 6.
AVERAGE ANNUAL ENGLISH GRAIN EXPORTS
IN QUARTERS (OF 8 BUSHELS), 1700-09 TO 1760-64

<table>
<thead>
<tr>
<th>DECADE</th>
<th>GRAIN EXPORTS IN QUARTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1700-09</td>
<td>283,000</td>
</tr>
<tr>
<td>1710-19</td>
<td>369,000</td>
</tr>
<tr>
<td>1720-29</td>
<td>426,000</td>
</tr>
<tr>
<td>1730-39</td>
<td>531,000</td>
</tr>
<tr>
<td>1740-49</td>
<td>661,000</td>
</tr>
<tr>
<td>1750-59</td>
<td>655,000</td>
</tr>
<tr>
<td>1760-64</td>
<td>746,000</td>
</tr>
</tbody>
</table>
Table 7.
MODEL OF A THREE-FIELD CROP ROTATION SYSTEM: ARABLE LANDS

<table>
<thead>
<tr>
<th>Year</th>
<th>FIELDS: A</th>
<th>FIELDS: B</th>
<th>FIELDS: C</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>FALL (Winter)</td>
<td>SPRING (Summer)</td>
<td>FALLOW</td>
</tr>
<tr>
<td></td>
<td>Wheat and/or Rye</td>
<td>Oats, Barley</td>
<td>Resting Uncultivated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Legumes (Peas and Beans)</td>
<td>(Double Ploughed)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Livestock graze on natural grasses</td>
</tr>
<tr>
<td>II</td>
<td>SPRING</td>
<td>FALLOW</td>
<td>FALL</td>
</tr>
<tr>
<td>III</td>
<td>FALLOW</td>
<td>FALL</td>
<td>SPRING</td>
</tr>
</tbody>
</table>
**SECTION I: PASTURE LANDS FOR GRAZING LIVESTOCK**

1) These lands, comprising about half of the farm holdings, are ‘laid down to grass’ for about five years, for pasturing livestock (sheep and/or cattle), allowing these lands to regain their fertility and store up large stocks of nitrogen. If the livestock are also ‘stall-fed’ -- i.e. from fodder crops outside the pasture -- their manure will add net amounts of nitrogen compounds to the soil.

2) After five or so years, these pasture lands are ‘ploughed up for arable’, to follow the five-course crop system indicated below for Section II (the other half of the farm holdings). After another five years, these lands, now arable, are again ‘laid down to grass’ to serve as pasture lands for the following five years.

**SECTION II: THE ARABLE FIELDS (with no fallow)**

<table>
<thead>
<tr>
<th>ARABLE FIELD A:</th>
<th>WINTER GRAINS: Wheat and/or Rye grains</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARABLE FIELD B:</td>
<td>THE NEW LEGUMES: Clover, Alfalfa (Lucerne), and Sainfoin grasses (high nitrogen-fixing properties), as animal fodder crops</td>
</tr>
<tr>
<td>ARABLE FIELD C:</td>
<td>PULSES: Beans and Peas (low in nitrogen-fixing properties, for human consumption)</td>
</tr>
<tr>
<td>ARABLE FIELD D:</td>
<td>SUMMER GRAINS: Barley (for beer) and Oats (to feed both humans and horses)</td>
</tr>
<tr>
<td>ARABLE FIELD E:</td>
<td>OTHER NEW CROPS: Coleseed and Rapeseed (for both industrial oils and animal fodder); or Turnips (chiefly for animal fodder)</td>
</tr>
</tbody>
</table>

‘New’ Crops Grown Under Multiple Crop Rotations in Convertible Husbandry (or in ‘Norfolk Farming’): not new, but much more widely diffused in the 17th & 18th centuries.

Clover, Alfalfa (Lucerne), Sainfoin, Coleseed, Rapeseed, Flax, Buckwheat, Hops, Turnips

**Nitrogen Fixing Properties of Various Legumes in kg per hectare (2.47 acres)**

<table>
<thead>
<tr>
<th>Crop Description</th>
<th>Nitrogen Fixing Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans and Peas (Pulses)</td>
<td>30 kg per hectare</td>
</tr>
<tr>
<td>Clover</td>
<td>100 kg per hectare</td>
</tr>
<tr>
<td>Sainfoin</td>
<td>170 kg per hectare</td>
</tr>
<tr>
<td>Alfalfa (Lucerne)</td>
<td>225 kg per hectare</td>
</tr>
</tbody>
</table>
### Table 9.

**OUTPUTS OF PRINCIPAL AGRICULTURAL COMMODITIES, 1700 - 1850**

*in Millions of Units (Bushels and Pounds)*

<table>
<thead>
<tr>
<th>COMMODITIES</th>
<th>Units</th>
<th>1700</th>
<th>1750</th>
<th>1800</th>
<th>1850</th>
<th>% Rise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grains and pulses</td>
<td>bushel</td>
<td>65</td>
<td>88</td>
<td>131</td>
<td>181</td>
<td>178.46</td>
</tr>
<tr>
<td>Meat</td>
<td>lb.</td>
<td>370</td>
<td>665</td>
<td>888</td>
<td>1356</td>
<td>266.48</td>
</tr>
<tr>
<td>Wool</td>
<td>lb.</td>
<td>40</td>
<td>60</td>
<td>90</td>
<td>120</td>
<td>200.00</td>
</tr>
<tr>
<td>Cheese</td>
<td>lb.</td>
<td>61</td>
<td>84</td>
<td>1122</td>
<td>157</td>
<td>157.38</td>
</tr>
</tbody>
</table>

**Volume in 1815 Prices (£ million)**

<table>
<thead>
<tr>
<th></th>
<th>£mill</th>
<th>19</th>
<th>25</th>
<th>37</th>
<th>56</th>
<th>194.74</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grains/potatoes</td>
<td>£mill</td>
<td>21</td>
<td>34</td>
<td>512</td>
<td>79</td>
<td>276.19</td>
</tr>
<tr>
<td>Livestock products</td>
<td>£mill</td>
<td>40</td>
<td>59</td>
<td>88</td>
<td>135</td>
<td>237.50</td>
</tr>
</tbody>
</table>

Table 10.  

UTILIZATION OF ENGLISH-WELSH LANDS, 1700 - 1850  
in millions of acres

<table>
<thead>
<tr>
<th>Land Type</th>
<th>in 1700</th>
<th>in 1800</th>
<th>in 1850</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arable</td>
<td>11.00</td>
<td>11.60</td>
<td>14.60</td>
<td>32.72</td>
</tr>
<tr>
<td>Pasture/Meadow</td>
<td>10.00</td>
<td>17.50</td>
<td>16.00</td>
<td>14.40</td>
</tr>
<tr>
<td>Woodlands</td>
<td>3.00</td>
<td>1.60</td>
<td>1.50</td>
<td>-50.00</td>
</tr>
<tr>
<td>Wastelands/forests</td>
<td>13.00</td>
<td>6.50</td>
<td>3.00</td>
<td>-76.92</td>
</tr>
<tr>
<td>TOTAL</td>
<td>38.00</td>
<td>38.50</td>
<td>37.30</td>
<td>-1.84</td>
</tr>
<tr>
<td>TOTAL AGRICULTURAL</td>
<td>34.00</td>
<td>35.60</td>
<td>33.60</td>
<td>-1.18</td>
</tr>
<tr>
<td>INDEX OF LAND INPUT</td>
<td>1.00</td>
<td>1.35</td>
<td>1.37</td>
<td>37.00</td>
</tr>
</tbody>
</table>

Table 11.

EMPLOYMENT IN ENGLISH/WELSH AGRICULTURE, 1700 - 1851, in thousands

<table>
<thead>
<tr>
<th>Category</th>
<th>1700</th>
<th>1800</th>
<th>1851</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>595</td>
<td>628</td>
<td>971</td>
<td>63.19</td>
</tr>
<tr>
<td>Women</td>
<td>505</td>
<td>426</td>
<td>409</td>
<td>-19.00</td>
</tr>
<tr>
<td>Boys</td>
<td>433</td>
<td>351</td>
<td>144</td>
<td>-66.74</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1533</td>
<td>1405</td>
<td>1524</td>
<td>0.59</td>
</tr>
<tr>
<td>WEIGHTED INDEX OF LABOUR INPUT</td>
<td>100</td>
<td>95</td>
<td>116</td>
<td>16.00</td>
</tr>
</tbody>
</table>

Table 12.

CAPITAL INVESTED IN ENGLISH/WELSH AGRICULTURE
in millions of £ at 1851/60 values

<table>
<thead>
<tr>
<th>INVESTORS</th>
<th>1700</th>
<th>1750</th>
<th>1800</th>
<th>1850</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landlords</td>
<td>112</td>
<td>114</td>
<td>143</td>
<td>232</td>
<td>107.14</td>
</tr>
<tr>
<td>Tenants</td>
<td>71</td>
<td>81</td>
<td>99</td>
<td>121</td>
<td>240.85</td>
</tr>
<tr>
<td>TOTAL INVESTED</td>
<td>183</td>
<td>195</td>
<td>242</td>
<td>353</td>
<td>92.90</td>
</tr>
</tbody>
</table>

Table 13.

**UTILIZATION OF THE ARABLE LANDS: CROPS AND FALLOW, 1700 - 1850**

in millions of acres

<table>
<thead>
<tr>
<th>Crops</th>
<th>1700</th>
<th>1750</th>
<th>1800</th>
<th>1850</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>1.4</td>
<td>1.8</td>
<td>2.5</td>
<td>3.6</td>
<td>157.1</td>
</tr>
<tr>
<td>Rye</td>
<td>0.9</td>
<td>0.5</td>
<td>0.3</td>
<td>0.1</td>
<td>-88.9</td>
</tr>
<tr>
<td>Barley</td>
<td>1.9</td>
<td>1.4</td>
<td>1.3</td>
<td>1.5</td>
<td>-21.1</td>
</tr>
<tr>
<td>Oats</td>
<td>1.2</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>66.7</td>
</tr>
<tr>
<td>Beans/Peas</td>
<td>1.3</td>
<td>1.0</td>
<td>1.2</td>
<td>1.0</td>
<td>-23.1</td>
</tr>
<tr>
<td>Turnips</td>
<td>0.4</td>
<td>1.0</td>
<td>1.3</td>
<td>2.0</td>
<td>400.0</td>
</tr>
<tr>
<td>Potatoes</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>300.0</td>
</tr>
<tr>
<td>Clover</td>
<td>0.5</td>
<td>1.0</td>
<td>1.2</td>
<td>2.2</td>
<td>340.0</td>
</tr>
<tr>
<td>Fallow</td>
<td>3.3</td>
<td>2.5</td>
<td>1.5</td>
<td>1.8</td>
<td>-45.5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>11.0</td>
<td>11.4</td>
<td>11.6</td>
<td>14.6</td>
<td>32.7</td>
</tr>
</tbody>
</table>

Table 14.

CROP YIELDS IN BUSHELS PER ACRE, 1700 TO 1850

<table>
<thead>
<tr>
<th>CROPS</th>
<th>1700</th>
<th>1750</th>
<th>1800</th>
<th>1850</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>16.0</td>
<td>18.0</td>
<td>21.5</td>
<td>28.0</td>
<td>78.1</td>
</tr>
<tr>
<td>Rye</td>
<td>17.0</td>
<td>18.0</td>
<td>26.0</td>
<td>28.0</td>
<td>64.7</td>
</tr>
<tr>
<td>Barley</td>
<td>23.0</td>
<td>25.0</td>
<td>30.0</td>
<td>36.5</td>
<td>58.9</td>
</tr>
<tr>
<td>Oats</td>
<td>24.0</td>
<td>28.0</td>
<td>35.0</td>
<td>40.0</td>
<td>66.7</td>
</tr>
<tr>
<td>Beans/Peas</td>
<td>20.0</td>
<td>28.0</td>
<td>28.0</td>
<td>30.0</td>
<td>50.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Denizen Exports</th>
<th>Hansard Exports</th>
<th>Other Aliens Exports</th>
<th>TOTAL Exports</th>
<th>London Denizens</th>
<th>London Hansards</th>
<th>London Other Aliens</th>
<th>London Total</th>
<th>London: % of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1346-50</td>
<td>2,246</td>
<td>310</td>
<td>2,556</td>
<td></td>
<td>12,805</td>
<td>12,805</td>
<td>12,805</td>
<td>12,805</td>
<td>100.00%</td>
</tr>
<tr>
<td>1351-55</td>
<td>1,586</td>
<td>335</td>
<td>1,921</td>
<td></td>
<td>10,864</td>
<td>10,864</td>
<td>10,864</td>
<td>10,864</td>
<td>100.00%</td>
</tr>
<tr>
<td>1356-60</td>
<td>7,376</td>
<td>174</td>
<td>1,511</td>
<td>9,061</td>
<td>14,912</td>
<td>14,912</td>
<td>14,912</td>
<td>14,912</td>
<td>100.00%</td>
</tr>
<tr>
<td>1361-65</td>
<td>9,099</td>
<td>1,020</td>
<td>1,598</td>
<td>11,717</td>
<td>17,659</td>
<td>17,659</td>
<td>17,659</td>
<td>17,659</td>
<td>100.00%</td>
</tr>
<tr>
<td>1366-70</td>
<td>10,978</td>
<td>1,310</td>
<td>2,240</td>
<td>14,527</td>
<td>21,415</td>
<td>21,415</td>
<td>21,415</td>
<td>21,415</td>
<td>100.00%</td>
</tr>
<tr>
<td>1371-75</td>
<td>9,102</td>
<td>1,240</td>
<td>1,869</td>
<td>12,211</td>
<td>19,007</td>
<td>19,007</td>
<td>19,007</td>
<td>19,007</td>
<td>100.00%</td>
</tr>
<tr>
<td>1376-80</td>
<td>9,673</td>
<td>1,383</td>
<td>2,586</td>
<td>13,643</td>
<td>21,752</td>
<td>21,752</td>
<td>21,752</td>
<td>21,752</td>
<td>100.00%</td>
</tr>
<tr>
<td>1381-85</td>
<td>13,949</td>
<td>2,800</td>
<td>5,493</td>
<td>22,242</td>
<td>35,642</td>
<td>35,642</td>
<td>35,642</td>
<td>35,642</td>
<td>100.00%</td>
</tr>
<tr>
<td>1386-90</td>
<td>17,192</td>
<td>3,125</td>
<td>5,293</td>
<td>25,610</td>
<td>44,016</td>
<td>44,016</td>
<td>44,016</td>
<td>44,016</td>
<td>100.00%</td>
</tr>
<tr>
<td>1391-95</td>
<td>22,974</td>
<td>6,346</td>
<td>10,205</td>
<td>39,525</td>
<td>63,484</td>
<td>63,484</td>
<td>63,484</td>
<td>63,484</td>
<td>100.00%</td>
</tr>
<tr>
<td>1396-00</td>
<td>23,318</td>
<td>5,646</td>
<td>9,811</td>
<td>38,775</td>
<td>63,035</td>
<td>63,035</td>
<td>63,035</td>
<td>63,035</td>
<td>100.00%</td>
</tr>
<tr>
<td>1401-05</td>
<td>19,450</td>
<td>6,548</td>
<td>8,571</td>
<td>34,570</td>
<td>55,922</td>
<td>55,922</td>
<td>55,922</td>
<td>55,922</td>
<td>100.00%</td>
</tr>
<tr>
<td>1406-10</td>
<td>12,997</td>
<td>6,568</td>
<td>12,181</td>
<td>31,746</td>
<td>49,516</td>
<td>49,516</td>
<td>49,516</td>
<td>49,516</td>
<td>100.00%</td>
</tr>
<tr>
<td>1411-15</td>
<td>12,284</td>
<td>4,980</td>
<td>9,919</td>
<td>27,183</td>
<td>44,261</td>
<td>44,261</td>
<td>44,261</td>
<td>44,261</td>
<td>100.00%</td>
</tr>
<tr>
<td>1416-20</td>
<td>14,051</td>
<td>5,722</td>
<td>8,205</td>
<td>27,977</td>
<td>50,140</td>
<td>50,140</td>
<td>50,140</td>
<td>50,140</td>
<td>100.00%</td>
</tr>
<tr>
<td>1421-25</td>
<td>21,180</td>
<td>6,935</td>
<td>12,160</td>
<td>40,275</td>
<td>61,447</td>
<td>61,447</td>
<td>61,447</td>
<td>61,447</td>
<td>100.00%</td>
</tr>
<tr>
<td>1426-30</td>
<td>20,334</td>
<td>5,304</td>
<td>14,768</td>
<td>40,406</td>
<td>58,214</td>
<td>58,214</td>
<td>58,214</td>
<td>58,214</td>
<td>100.00%</td>
</tr>
<tr>
<td>1431-35</td>
<td>25,474</td>
<td>4,062</td>
<td>10,492</td>
<td>40,027</td>
<td>66,077</td>
<td>66,077</td>
<td>66,077</td>
<td>66,077</td>
<td>100.00%</td>
</tr>
<tr>
<td>1436-40</td>
<td>22,864</td>
<td>9,145</td>
<td>15,063</td>
<td>47,072</td>
<td>74,037</td>
<td>74,037</td>
<td>74,037</td>
<td>74,037</td>
<td>100.00%</td>
</tr>
<tr>
<td>1441-45</td>
<td>28,163</td>
<td>11,336</td>
<td>16,957</td>
<td>56,456</td>
<td>90,456</td>
<td>90,456</td>
<td>90,456</td>
<td>90,456</td>
<td>100.00%</td>
</tr>
<tr>
<td>1446-50</td>
<td>25,286</td>
<td>9,301</td>
<td>11,259</td>
<td>45,847</td>
<td>69,953</td>
<td>69,953</td>
<td>69,953</td>
<td>69,953</td>
<td>100.00%</td>
</tr>
<tr>
<td>1451-55</td>
<td>20,785</td>
<td>8,214</td>
<td>7,701</td>
<td>36,700</td>
<td>55,697</td>
<td>55,697</td>
<td>55,697</td>
<td>55,697</td>
<td>100.00%</td>
</tr>
<tr>
<td>1456-60</td>
<td>18,911</td>
<td>10,017</td>
<td>7,562</td>
<td>36,489</td>
<td>57,496</td>
<td>57,496</td>
<td>57,496</td>
<td>57,496</td>
<td>100.00%</td>
</tr>
<tr>
<td>1460-65</td>
<td>16,046</td>
<td>8,584</td>
<td>4,371</td>
<td>29,002</td>
<td>47,329</td>
<td>47,329</td>
<td>47,329</td>
<td>47,329</td>
<td>100.00%</td>
</tr>
<tr>
<td>1466-70</td>
<td>21,255</td>
<td>5,807</td>
<td>10,386</td>
<td>37,447</td>
<td>59,589</td>
<td>59,589</td>
<td>59,589</td>
<td>59,589</td>
<td>100.00%</td>
</tr>
<tr>
<td>1471-75</td>
<td>20,705</td>
<td>3,415</td>
<td>12,417</td>
<td>36,537</td>
<td>56,649</td>
<td>56,649</td>
<td>56,649</td>
<td>56,649</td>
<td>100.00%</td>
</tr>
<tr>
<td>1476-80</td>
<td>32,185</td>
<td>8,226</td>
<td>10,030</td>
<td>50,441</td>
<td>72,856</td>
<td>72,856</td>
<td>72,856</td>
<td>72,856</td>
<td>100.00%</td>
</tr>
<tr>
<td>1481-85</td>
<td>29,191</td>
<td>13,439</td>
<td>11,568</td>
<td>54,198</td>
<td>75,309</td>
<td>75,309</td>
<td>75,309</td>
<td>75,309</td>
<td>100.00%</td>
</tr>
<tr>
<td>Year</td>
<td>Denizen</td>
<td>Hansard</td>
<td>Other Aliens</td>
<td>TOTAL</td>
<td>London</td>
<td>London</td>
<td>London</td>
<td>London</td>
<td>London:</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>--------------</td>
<td>-------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>Michaelmas</td>
<td>Exports</td>
<td>Exports</td>
<td>EXPORTS</td>
<td>Denizens</td>
<td>Hansards</td>
<td>Other Aliens</td>
<td>Total</td>
<td>% of Total</td>
</tr>
<tr>
<td>1486-90</td>
<td>25,892</td>
<td>13,740</td>
<td>10,373</td>
<td>50,005</td>
<td>14,369</td>
<td>12,465</td>
<td>8,288</td>
<td>35,122</td>
<td>70.24%</td>
</tr>
<tr>
<td>1491-95</td>
<td>29,513</td>
<td>15,100</td>
<td>12,332</td>
<td>56,945</td>
<td>14,135</td>
<td>13,868</td>
<td>7,890</td>
<td>35,893</td>
<td>63.03%</td>
</tr>
<tr>
<td>1496-00</td>
<td>35,668</td>
<td>17,175</td>
<td>9,740</td>
<td>62,583</td>
<td>20,047</td>
<td>16,282</td>
<td>6,417</td>
<td>42,746</td>
<td>68.30%</td>
</tr>
<tr>
<td>1501-05</td>
<td>44,803</td>
<td>17,638</td>
<td>14,830</td>
<td>77,271</td>
<td>21,224</td>
<td>16,819</td>
<td>8,567</td>
<td>46,611</td>
<td>60.32%</td>
</tr>
<tr>
<td>1506-10</td>
<td>46,832</td>
<td>16,984</td>
<td>20,987</td>
<td>84,803</td>
<td>27,352</td>
<td>16,473</td>
<td>8,566</td>
<td>52,390</td>
<td>61.78%</td>
</tr>
<tr>
<td>1511-15</td>
<td>49,110</td>
<td>21,621</td>
<td>15,861</td>
<td>86,592</td>
<td>33,493</td>
<td>20,739</td>
<td>8,025</td>
<td>62,257</td>
<td>71.90%</td>
</tr>
<tr>
<td>1516-20</td>
<td>51,128</td>
<td>20,411</td>
<td>18,559</td>
<td>90,099</td>
<td>36,485</td>
<td>19,766</td>
<td>6,834</td>
<td>63,084</td>
<td>70.02%</td>
</tr>
<tr>
<td>1521-25</td>
<td>48,675</td>
<td>18,457</td>
<td>15,137</td>
<td>82,269</td>
<td>35,565</td>
<td>18,120</td>
<td>8,170</td>
<td>61,854</td>
<td>75.19%</td>
</tr>
<tr>
<td>1526-30</td>
<td>56,942</td>
<td>20,402</td>
<td>16,190</td>
<td>93,534</td>
<td>42,657</td>
<td>19,486</td>
<td>10,207</td>
<td>72,350</td>
<td>77.35%</td>
</tr>
<tr>
<td>1531-35</td>
<td>53,966</td>
<td>24,274</td>
<td>15,847</td>
<td>94,087</td>
<td>40,988</td>
<td>24,083</td>
<td>10,431</td>
<td>75,503</td>
<td>80.25%</td>
</tr>
<tr>
<td>1536-40</td>
<td>61,008</td>
<td>30,747</td>
<td>17,523</td>
<td>109,278</td>
<td>46,704</td>
<td>30,666</td>
<td>14,360</td>
<td>91,731</td>
<td>83.94%</td>
</tr>
<tr>
<td>1541-45</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>118,056</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>101,550</td>
<td>86.02%</td>
</tr>
<tr>
<td>1546-50</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>135,190</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>123,780</td>
<td>91.56%</td>
</tr>
<tr>
<td>1551-55</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>126,595</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>110,888</td>
<td>87.59%</td>
</tr>
</tbody>
</table>

Notes: English Broadcloth = 24 yds by 1.75 yds, for cloths of assise: 4 straits and dozens = 1 broadcloth; and 3 kerseys = 1 broadcloth. From one sack of wool, 4.333 broadcloths could be manufactured.
Table 16. **LONDON CLOTH EXPORTS**

Exports of English Woollen Broadcloths* (‘Short cloths’) from London, in decennial means, from 1460-69 to 1630-39

Index: Mean of 1500-09 = 100

<table>
<thead>
<tr>
<th>Years</th>
<th>Exports</th>
<th>Index</th>
<th>Years</th>
<th>Exports</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1460-9</td>
<td>17,717</td>
<td>36.00</td>
<td>1553-9b</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>1470-9</td>
<td>26,707</td>
<td>54.20</td>
<td>1560-9</td>
<td>85,952</td>
<td>174.50</td>
</tr>
<tr>
<td>1480-9</td>
<td>35,533</td>
<td>72.20</td>
<td>1570-9</td>
<td>90,319</td>
<td>183.40</td>
</tr>
<tr>
<td>1490-9</td>
<td>39,409</td>
<td>80.00</td>
<td>1580-9</td>
<td>98,101</td>
<td>199.20</td>
</tr>
<tr>
<td>1500-9</td>
<td>49,247</td>
<td>100.00</td>
<td>1590-9</td>
<td>101,172</td>
<td>205.40</td>
</tr>
<tr>
<td>1510-9</td>
<td>61,036</td>
<td>123.90</td>
<td>1601-9c</td>
<td>108,464</td>
<td>220.20</td>
</tr>
<tr>
<td>1520-9</td>
<td>66,673</td>
<td>135.40</td>
<td>1610-9d</td>
<td>105,906</td>
<td>215.10</td>
</tr>
<tr>
<td>1530-9</td>
<td>80,736</td>
<td>163.90</td>
<td>1620-9e</td>
<td>89,637</td>
<td>182.00</td>
</tr>
<tr>
<td>1540-9a</td>
<td>110,135</td>
<td>223.60</td>
<td>1630-9f</td>
<td>88,066</td>
<td>178.80</td>
</tr>
<tr>
<td>1550-2b</td>
<td>110,148</td>
<td>223.70</td>
<td>1640g</td>
<td>86,924</td>
<td>176.50</td>
</tr>
</tbody>
</table>

* 1 short broadcloth = 24 yards by 1.75 yards fulled.

**Notes:**

a. 1540-47 only
b. 1550-52 only; 1553-9 missing data
c. 1601-04 and 1606 only: mean of five years
d. 1614, 1616, and 1618 only: mean of three years
e. 1620, 1622, 1626-28 only
f. 1631-33 only: mean of four years
g. 1640 only
Table 17. ENGLISH LANDHOLDING IN 1436 AND 1690

<table>
<thead>
<tr>
<th></th>
<th>1436</th>
<th>1690</th>
</tr>
</thead>
<tbody>
<tr>
<td>Church and Crown</td>
<td>35%</td>
<td>10%</td>
</tr>
<tr>
<td>Peerage (aristocracy)</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>Gentry</td>
<td>25%</td>
<td>45%</td>
</tr>
<tr>
<td>Yeoman Freeholders</td>
<td>20%</td>
<td>27%</td>
</tr>
<tr>
<td>TOTALS</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>


**************************

Social Rank and Status in Tudor-Stuart England

THE PEERAGE

THE HOUSE OF LORDS

The Greater Nobility: Lords and Ladies
1. Duke, Archbishop (Lord)
2. Marquess (Marquise) (Lord)
3. Viscount (Lord)
4. Baron (Lord)

THE GENTRY

THE HOUSE OF COMMONS

The Lesser Nobility: Gentlemen
5. Viscount (Lord)
6. Baronet (from 1611 only): Sir
7. Knight (Sir)
8. Esquire (Mr.)
9. Gentleman (Mr.)
### The Ricardo Model of Economic Rent

<table>
<thead>
<tr>
<th>Economic Rent</th>
<th>PRODUCTION COSTS: PER BUSHEL OF GRAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Prices and Costs (Y axis)**

**UNITS OF LAND ADDED TO PRODUCTION** (X axis)