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From *Gutsherrschaft* to *Grundherrschaft*: monetary and fiscal factors in the decline of English demesne agriculture and serfdom, ca. 1380 - ca. 1420

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From *Gutsherrschaft* to *Grundherrschaft*: monetary and fiscal factors in the decline of English demesne agriculture, ca. 1370 - ca. 1420

This paper offers a combined monetary and fiscal model, complementing and not displacing the standard demographic model, to explain the well known decline of both manorial demesne farming and serfdom in late-medieval England, from the 1370s to the 1420s. The paper also utilizes the German paradigms of *Gutsherrschaft* and *Grundherrschaft*. The former is a manorial regime in which the lord's incomes are primarily derived from the commercial exploitation of his demesnes lands (in England: for grains and wools), using compulsory labour services of *villein* (serf) tenants. The latter is a manorial regime in which the lord's incomes are instead primarily derived from peasant tenancy rentals, most non-servile.

The standard 'Ricardian' demographic model has two related components: (1) The severe fall in population, following the Black Death (1348), so altered the land:labour ratio that it not only raised labour productivity and real wages but also so enhanced the bargaining power of labour that serfdom was no longer economically and socially viable. (2) Population decline also lowered the real cost of producing grains and thus their relative prices: by ultimately forcing the abandonment of high-cost marginal lands, so that grain was being produced on more fertile, more productive, lower cost lands (peasant as well as manorial) and with more productive and thus lower cost labour. In the face of these dual problems – falling grain prices and rising wages – combined with severe labour shortages, and higher costs of enforcing serfdom, manorial lords gradually abandoned direct cultivation of their demesnes, leased out parcels of those demesnes to tenants, without servile obligations, and thus also gave up demanding labour services from their *villein* tenants, since contractions in demesne holdings obviously meant that such servile services were generally no longer needed. Most historians agree that these and institutional factors explain the decline of English serfdom.

My monetary-fiscal model is offered as a supplementary explanation, which also helps explain the long time-lag between the catastrophe of the Black Death (1348) and the much later 'collapse' of demesne farming, from the 1370s and 1380s. The first part of the model, based on my earlier publications on money, prices and wages during the 'bullion famine' era of ca. 1370- ca.1420, contends that the steep fall in agricultural commodity prices, along with a lesser fall in industrial prices, constituted genuine monetary deflation (of 25%). For the logic of the demographic model – as explained here – is that a fall in grain prices, produced by *real* factors, liberated more income to be spent on livestock products (meat, dairy products, leather, woollen textiles, etc), thus raising their *relative* prices. And yet the fall in wool prices (42%) and other livestock prices (35%) was commensurate with the fall in grain prices (39%) . The second part deals with factor prices: the undisputed fact that at least their nominal prices, in terms of wages and interest, did not fall during this era (experienced at least 'stickiness') and thus that these *real* costs rose severely for most manorial lords, ca. 1370-ca.1420. The third part of the model deals with the particular case of English wool exports: the increasing burden of royal taxation, in *fixed* and not *ad valorem* export duties, whose burden thus rose sharply with deflation (the fall in wool-prices) – amounting to 50% of the value of wool exports, by the 1390s; and these wools constituted about 70% of production costs for England's chief customers, the Flemish draperies, whose production indices fell about 80% in this period. During this period, the wool export trade fell 61% in volume, which was only partially offset by the corresponding rise of the English cloth trade.

While some manorial lords, along with peasants, were able to survive by switching from both arable and wool-oriented sheep raising to the production of other livestock products, a majority did not. Faced with rising real labour costs – so important in grain cultivation – and capital costs, and with sharply falling prices for almost all agricultural products, and possibly even steeper declines in wool sales, the latter found a much better economic solution in leasing the demesne, with a shift to *Grundherrschaft*: for they then received fixed rental incomes, often for long terms, whose *real* value thus rose with deflation. The burden of rising wages and falling prices was thus transferred to their peasant tenants – who probably still welcomed more land to work and more freedom, both economic and personal, a fair 'trade-off'.

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From *Gutsherrschaft* to *Grundherrschaft*: monetary and fiscal factors in the decline of English demesne agriculture, ca. 1370 - ca. 1420

by John H. Munro (University of Toronto)

The decline of English manorial demesne farming: the shift from *Gutsherrschaft* to *Grundherrschaft*, from the 1370s to the 1420s

According to most historians, most English manorial landlords experienced a significant contraction of their demesne holdings from the late fourteenth century: i.e., not immediately after the Black Death, but rather from the 1370s to the 1420s.¹ Drawing upon a classic paradigm of German historians, we may view that transformation in terms of a shift from *Gutsherrschaft* to *Grundherrschaft*: from a manorial economy in which lords received over half of their incomes from the direct commercial exploitation of their demesne lands and the profits of manorial justice (lordship) to an economy in which they receive over half of their incomes from tenancy rentals, chiefly in money. One of the hallmarks of *Gutsherrschaft*, though clearly more evident in East-Elbian German Junker estates than in English manors, was the extraction of servile labour to cultivate the demesne lands, to the extent that the largest single share of peasant tenancy rents was furnished in the form of such labour services.²

Thus one may assume that a transition to a *Grundherrschaft* economy in later medieval England consequently meant a significant reduction or even elimination of such servile labour exactions and, to some considerable extent, a decline in serfdom itself, even if from other related circumstances. Obviously, the *Gutsherrschaft* paradigm had never applied to all of medieval England, but chiefly to the classic feudal-

¹ See nn. below.

² See William Hagen, 'How Mighty the Junkers? Peasant Rents and Seigneurial Profits in Sixteenth-Century Brandenburg', *Past & Present*, no. 108 (August 1985), Table, p. 100: 'Composition of the Market Values of Assets and Incomes Derived from the Stavenow Manorial Estates in Brandenburg (Eastern Germany) in 1601': expressed in Gulden (Florins). Hagen, however, does not explain how the 'labour rents' were valued in terms of such Gulden. See also, for England: Christopher Dyer, 'Villeins, Bondsmen, Neifs, and Serfs: New Serfdom in England, c. 1200 - 1600', Paul Freedman and Monique Bourin, eds., *Forms of Servitude in Northern and Central Europe: Decline, Resistance, and Expansion*, Medieval Texts and Cultures of Northern Europe (Turnhout: Brepols, 2005), pp. 419-35.

manorial ‘champion’ (champaign) zone of the Midlands. To what extent even in the Midlands a *Gutsherrschaft* manorial economy had the same features as subsequently found in German East-Elbian manorialism during the era of the so-called ‘Second Serfdom’ is beyond the scope of this study.³

As most historians would also contend, however, a shift away from some form of *Gutsherrschaft*, i.e., to leasing some demesne lands, had begun on some Midlands manors before the 1370s, and even before the Black Death. Indeed, many ecclesiastical estates that had once dominated wool exports – the Cistercians, Augustinian Canons, Premonstratensians – had let out much of their demesnes from the 1330s, evidently in reaction to Edward III’s current regulations of the wool trade.⁴ Otherwise, the relatively few examples of partial leasing, both before and just after the Black Death, took place for a variety of local reasons, and distinctly different from the economic circumstances of the later fourteenth and early fifteenth centuries.⁵ Indeed, some that had been let out on short term leases were subsequently taken back ‘in hand’

³ For some basic comparisons and analyses, see the Appendix to this study.

⁴ See John Munro, ‘Wool-Price Schedules and the Qualities of English Wools in the Later Middle Ages, ca. 1270 - 1499’, *Textile History*, 9 (1978), 118-69, esp. p. 157; reprinted in John Munro, *Textiles, Towns, and Trade: Essays in the Economic History of Late-Medieval England and the Low Countries*, Variorum Collected Studies series CS 442 (Aldershot, Hampshire: Ashgate Publishing Ltd., 1994). For the pronounced role of these religious houses in the wool-export trade, from ca. 1270 to ca. 1320, see pp. 119-34; and especially Table 1 (pp. 121-22), Table 2 (p. 124), and Table 3 (p. 128). In that article, I put forward, briefly, the hypothesis that Edward III’s royal ordinance, known as the Nottingham Wool Price Schedule of 1336-37, to fix minimum wool prices, but only for the best wools, for each country, evidently under current market values, proved injurious to the wool-economies of the Cistercian and other monastic estates. Thereafter, Parliamentary continued to fix such wool prices, country by county, to the end of the fifteenth century. I have not subsequently, however, developed this hypothesis into a thesis. See also R.A. Donkin, ‘Cistercian Sheep-Farming and Wool Sales in the Thirteenth Century,’ *Agricultural History Review*, 6 (1958), 2-9; R.A. Donkin, ‘The Disposal of Cistercian Wool in England and Wales during the Twelfth and Thirteenth Centuries,’ *Cîteaux in de Nederlanden*, 8 (1959), 181-202; R. A. Donkin, *The Cistercians: Studies in the Geography of Medieval England and Wales* (Toronto: Pontifical Institute of Mediaeval Studies, 1978); Robert Whitwell, ‘English Monasteries and the Wool Trade in the 13th Century’, *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, 2 (1904), 8-11, 24-30; David Knowles, *The Religious Orders in English Medieval History*, 3 vols. (Cambridge: University Press, 1948-61), vol. I, pp. 67-69; Terence H. Lloyd, *The English Wool Trade in the Middle Ages* (Cambridge: University Press, 1977), pp. 288- 317 (‘Marketing the Wool’); Adrian R. Bell, Chris Brooks, and Paul R. Dryburgh, *The English Wool Market, c. 1230 - 1327* (Cambridge and New York: Cambridge University Press, 2007).

⁵ For leasing demesne lands on Leicester Abbey estates before 1341, piecemeal, in small tenant plots, see Rodney H. Hilton, *The Economic Development of Some Leicestershire Estates in the 14th and 15th*

by the later fourteenth century.⁶ The estates of the Bishop of Worcester (Worcestershire, Warwickshire, Gloucestershire) may provide a useful index of the extent of manorial demesne leasing by the later 1380s: of its twenty-two manors, eight (36.4 percent) had been permanently leased and the other 14 (63.6 percent) remained ‘in hand’.⁷

Some of those eight Worcester episcopal demesnes may have been recently leased; and a combination of available evidence indicates that the predominant shift to *Grundherrschaft* took place from the 1370s, if not earlier. Eleanor Searle, in her classic study of Battle Abbey, found that ‘by the 1380’s, the demesne was entirely in the hands of the tenants, or abandoned’.⁸ J. M. Bean states, however, that ‘there is a general consensus that the crucial years in this process were between 1380 and 1420’.⁹ More specifically, Ambrose Raftis contends that an evidently dramatic ‘collapse’ of demesne farming on the Ramsey Abbey estates (Cambridgeshire, Huntingdonshire, Hertfordshire, Bedfordshire, Northamptonshire, Norfolk) took place

Centuries, Oxford Historical Series (London: Oxford University Press, 1947), pp. 88-91; Christopher Dyer, *Lords and Peasants in a Changing Society: the Estates of the Bishopric of Worcester, 680 - 1540*, Past and Present Publications (Cambridge and New York: Cambridge University Press, 1980), p. 113 (early 14th century). For other examples, see J. R. Bolton, *The Medieval English Economy, 1150 - 1500* (London: J. M. Dent & Sons, 1980), p. 214: leasing of the Clare estate demesnes had begun in the 1360s, and was ‘virtually completed’ by 1381.

⁶ See Barbara Harvey, ‘The Leasing of the Abbot of Westminster’s Demesnes in the Later Middle Ages’, *Economic History Review*, 2nd ser., 22:1 (April 1969), 17-27. She notes that the Chaceley manorial demesne was leased from 1358 to 1361, but was taken back ‘in hand’ in 1362; and the Todenham demesne was first leased in 1360, but was ‘back in hand’ from 1374 to 1391 (p. 19).

⁷ Dyer, *Lords and Peasants*, p. 119. As another indicator worth observing: the total number of demesne ploughs had fallen from 61 in 1302 to 20 in 1389: half from leasing the eight demesnes, and the other half from contractions of the arable, including conversions into pasture.

⁸ Eleanor Searle, *Lordship and Community: Battle Abbey and Its Banlieu, 1066-1538* (Toronto: Pontifical Institute of Mediaeval Studies Press, 1974), p. 324. In the early fourteenth century, its Sussex manor of Marley had been ‘entirely demesne’ and ‘was worked entirely by wage labor.’ (p. 268)

⁹ J. M. W. Bean, ‘Landlords’, in Edward Miller, ed., *The Agrarian History of England and Wales*, vol. III: 1348 - 1500 (Cambridge and New York: Cambridge University Press, 1991), pp. 573-76: in discussing ‘the abandonment of direct management of demesne lands, meadows, and pastures which were then leased to tenants’. He also noted, however (p. 574), that ‘the lay magnates had never been involved in demesne farming to the same extent as the bishops and the great religious houses’.

during and just after the 1390s.¹⁰ His contention is further verified by the research of his doctoral student, Edwin Dewindt, who also notes that some leasing had commenced as early as 1370.¹¹ On the estates of the bishop of Worcester, Christopher Dyer did discover some examples of demesne in the 1380s, but found that ‘the main break [i.e., shift to leasing demesne lands] came with [Bishop] Wakefield’s death in 1395’.¹² Barbara Harvey, having examined the estate accounts of Westminster Abbey, similarly contends that ‘the turn of the tide may be placed around the year 1390’, for the very large number of its manorial demesnes, scattered over much of southern and central England (in Middlesex, Surrey, Worcestershire, Gloucestershire, Oxfordshire, Buckinghamshire). By 1400, the only arable demesnes that continued under direct manorial cultivation were Denham, Pyrford, and Bourton-on-the-Hill; and by 1420, only Denham remained ‘in hand’.¹³ On the manors of the Archbishop of Canterbury, according to the findings of F. R. H. Du Boulay, ‘by 1400 most of the demesnes, and by 1450, all of them were being leased out’.¹⁴

The demographic model for the decline of demesne farming and of serfdom

¹⁰ Ambrose Raftis, ‘Peasants and the Collapse of the Manorial Economy on Some Ramsey Abbey Estates’, in Richard Britnell and John Hatcher, eds., *Progress and Problems in Medieval England: Essays in Honour of Edward Miller* (Cambridge and New York: Cambridge University Press, 1996), p. 196: ‘Over the 1390s there began a long-term agricultural depression on the estates of Ramsey abbey that would ultimately bring more changes than the great famine of the second decade of the century and the plague together with all its sequels from the mid-century’. See also J. Ambrose Raftis, *The Estates of Ramsey Abbey: A Study in Economic Growth and Organization*, Studies and Texts no. 3 (Toronto: Pontifical Institute of Mediaeval Studies, 1957), pp. 251-301.

¹¹ Edwin DeWindt, *Land and People in Holywell-cum-Needingworth: Structures of Tenure and Patterns of Social Organization in an East Midlands Village, 1252 - 1457*, Studies and Texts, no. 22 (Toronto: Pontifical Institute of Mediaeval Studies, 1972), pp. 107-61. He states that by 1410, the demesnes on six Ramsey Abbey manors, including Holywell, had been leased; and all the rest were leased by the 1450s (p. 107).

¹² Dyer, *Lords and Peasants*, p. 147: Stratford was leased in 1389; Hampton, in 1392.

¹³ Barbara Harvey, *Westminster Abbey and its Estates in the Middle Ages* (Oxford: The Clarendon Press, 1977), p. 268: for the list of its demesne manors, by counties, see Appendix I, pp. 335-64; Harvey, *Westminster’s Demesnes*, pp. 17-27.

¹⁴ F. R. H. Du Boulay, ‘Who Were Farming the English Demesnes at the End of the Middle Ages?’, *The Economic History Review*, 2nd ser., 17:3 (1965), pp. 445-46.

Many historians will, of course, contend that demographic factors were fundamentally responsible for the contraction and leasing of manorial demesnes in all forms, at least after the Black Death, and also for the concomitant decline of villeinage or serfdom. The basic argument is essentially Ricardian and indeed with simple, straight-forward economic theory. Thus, the post-Plague depopulations so altered the land: ratios – even after accounting for desertions and vacated holdings – that both peasant tenants and landless labourers gained superior bargaining powers in dealing with manorial lords, any other landowners, other employers, rural and urban. To the extent that formerly landless labourers were then able to acquire holdings, such acquisitions would have reduced even more the effective supply of hired labour.¹⁵

With the consequent and growing *relative* shortages of rural labour, the increased opportunities of acquiring land and/or employment elsewhere (again both rural and urban), and increased transaction costs of enforcing the traditional conditions of servitude, especially obligations to provide rents in labour services on demesnes, many manorial peasants who had been subjected to *villein* or servile status found both increased incentives and increased opportunities to desert their manorial lords. Others found it much easier to alter the conditions of their tenancies: to shift from *villein* status to forms of *copyhold* status with fewer, or diminished servile obligations, including labour services. At the same time, manorial lords found it increasingly more and more difficult to acquire any form of labour, free (including landless) or servile, for wages or other economic terms that permitted them to maintain viable demesne economies. Dyer, in analysing accounts of the Worcester episcopal estate, notes that on those manors where labour services had been customarily extracted, ‘mass commutations’ are to be found ‘around 1390’, accompanying the shift from direct exploitation to leasing the demesne lands.¹⁶ Thus, for many landlords, as years passed, the simplest solution to their problems was to lease, or increase leasing-out their demesne lands to peasant tenants – but also, as will be noted later, to some gentry farmers.

¹⁵ For excellent surveys and perceptive comments on the demographic models, see. Rigby, *English Society in the Later Middle Ages*, pp. 60-95; and Hatcher and Bailey, *Modelling the Middle Ages*, pp. 21-65.

¹⁶ Dyer, *Lords and Peasants*, p. 120.

A related demographic model is called on to explain another, complementary problem that faced so many manorial lords from the 1370s and one that provided yet another reasons why they chose to abandon direct cultivation of demesne lands and to lease them instead: the steep decline in agricultural prices. basic Ricardian argument is that continued depopulation ultimately forced the abandonment of high-cost marginal lands, so that the same necessary quantity of grains, to feed a much smaller population, was finally being produced at much lower costs on relatively better, more fertile lands, not just demesne but also peasant lands (we presume). Furthermore, that depopulation also meant a radical change in the land:labour ratio that consequently and necessarily increased the marginal productivity of labour. Hence, grain, whose cultivation was very labour intensive – much more so than in pastoral farming – was now being produced at even lower costs, i.e, with a smaller complement of more productive agricultural workers

In the form of a ‘non-vicious circle’, this very major decline in demesne cultivation, the consequent physical contraction of demesnes, and the consequent shift from *Gutsherrschaft* to *Grundherrschaft*, so that a much greater share of manorial income came from tenants’ rents, consequently reduced the lords’ need to impose servile conditions, especially from now unneeded compulsory labour services on the demesnes. Few would dispute this relationship between the decline of demesne farming, especially with such forms of leasing, and the decline of English serfdom, during the later fourteenth, early fifteenth centuries. As Rodney Hilton commented: ‘as customary [villeinage] tenures were turned into copyhold, as was general by the beginning of the fifteenth century, the servility associated with them seemed ... to melt away’.¹⁷ But in so many cases, what also ‘melted away’ was their security of tenure for themselves and their offspring, i.e., inheritance rights (those that applied when serfs and offspring were bound to the estate), since so many copyhold tenures were either ‘at will’, or for a number of ‘lives’ – from one to three lives. But even so, copyhold for three lives often meant no more than twenty years, though many were in fact life tenures.

Bridbury’s particular demographic model on the post 1370s collapse of demesne farming

¹⁷ Hilton, *Decline of Serfdom*, p. 47.

The application of such a demographic model raises, however, an important issue: if drastic population decline had been the paramount factor in the combined decline of manorial demesne farming and of serfdom, why did that socio-economic transformation not take place shortly after the Black Death? A. R. Bridbury suggested one obvious reason:¹⁸

..the immensely heavy mortality caused by the Black Death was quite incapable of altering the social and economic relationships of the community or of impairing its capacity to produce and distribute goods and services because so much of the population was surplus by the fourteenth century that the early famines and the mid-century pestilences were more purgative than toxic.

In theoretical support of this view, he cites a classic study of Arthur Lewis (Nobel prize winner, 1979), on an economy with ‘unlimited labour’ supplies: in which the marginal productivity of labour is either nil or negative, and one that ‘has nothing to lose in productive power if its surplus manpower is removed’.¹⁹ We are thus left to assume (though not necessarily by Bridbury’s complex arguments) that only after the subsequent plagues of 1361 and 1368-69, with continuous mortalities, and only after a possible decline in the live replacement ratio (and/or decline in the birth rate), did the population decline become severe enough to achieve a drastic change in the land:labour ratio, drastic enough to produce a substantial rise in real wages of labourers and thus to activate the Ricardian model.²⁰ Bridbury then observes a very major change in the

¹⁸ A.R. Bridbury, ‘The Black Death’, *Economic History Review*, 2nd ser. 26:4 (1973), 557-92; quotation on page 591. He also comments (p. 591) that ‘If mid-century England were so full of people that a loss of at least one-third of the population was insufficient to change the relationships of land to labour, then the Black Death can tell us something important about the depths of poverty that large sections of the community had plumbed in earlier decades’. But in a subsequent article, Bridbury contended that pre-Black Death England was neither overpopulated nor, therefore, subject to a Malthusian impoverishment of its lower classes. See A.R. Bridbury, ‘Before the Black Death’, *Economic History Review*, 2nd ser., 30:3 (August 1977), 393-410.

¹⁹ Bridbury, ‘Black Death’, pp. 590-91, citing W. A. Lewis, ‘Economic Development with Unlimited Supplies of Labour’, *The Manchester School*, 22 (1954), reprinted in A.N. Agarwala and S. P. Singh, eds., *The Economics of Underdevelopment: A Series of Articles and Papers* (Oxford: Oxford University Press, 1958; reissued 1966), pp. 400-49. Bridbury (p. 590) also refers to ‘this submerged and pullulating throng’ of pre-Black Death peasant population.

²⁰ Bridbury, ‘Black Death’, p. 589 cites William Langland’s description of the plague (*Piers the Ploughman*, written ca. 1360-87) as ‘steady drizzle of rain upon a leaking roof’. See also Sylvia Thrupp, ‘The Problem of Replacement Rates in Late Medieval English Population’, *Economic History Review*, 2nd

manorial records that has taken place by the late fourteenth century, when they are replete with entries on ‘decayed rents, abandoned holdings, and demesne farms surrendered to tenants on almost any terms they cared to offer.’ For ‘the big demesne farmers, who had weathered so many storms ... it was the end’.²¹

Another demographic-institutional model: the ‘Feudal Reaction’

An even less satisfactory explanation lies in the theory of a post- Black Death ‘feudal reaction’. It is in fact another variant of a demographic model, or rather a combined demographic-institutional model, one that Marc Bloch had utilized to explain the original rise of serfdom with the decline of the Roman Empire in the west, accompanied by a drastic fall in both the population in general and the slave supply, in particular. In essence, according to this model, powerful military landlords, faced with rising military costs, and unimpeded by any central judicial authorities, responded to these challenges by using their power to bind peasants to their estates: to prevent them from bidding up wages and from bidding down rents.²² Some historians have produced studies in support of this theory of a such a ‘feudal reaction’ during the quarter-century.²³ In seeming support of this view is G. A. Holmes contention that England’s higher nobility, as manorial lords, had evidently increased their share of the national income between the Black

ser., 18:1 (1965), 101-19 (though this article has provoked some criticisms).

²¹ Bridbury, ‘Black Death’, p. 586.

²² See Marc Bloch, ‘The Rise of Dependent Cultivation and Seigneurial Institutions’, in J.H. Clapham and Eileen Power, eds., *The Cambridge Economic History of Europe*, Vol. I: *The Agrarian Life of the Middle Ages*, 1st edn. (Cambridge University Press, 1941), pp. 224-77; Marc Bloch, *Slavery and Serfdom in the Middle Ages: Selected Papers*, trans. William R. Beer (Los Angeles: University of California Press, 1975). For a similar thesis, but directed to the ‘Second Serfdom’ (and without any references to Marc Bloch), see Evsey D. Domar, ‘The Causes of Slavery or Serfdom: A Hypothesis’, *Journal of Economic History*, 30:1 (Mar. 1970), 18-32.

²³ See Richard H. Britnell, ‘Feudal Reaction after the Black Death in the Palatinate of Durham’, *Past & Present*, no. 128 (August 1990), pp. 28-47; Hilton, *Decline of Serfdom*, pp. 26-59 (and other publications by Hilton, in n. 29 below); Bolton, *Medieval English Economy*, pp. 214-21; Rigby, *English Society*, pp. 104-27.

Death and the 1370s.²⁴ In particular, many have debated one significant example of government intervention to protect landowners: the Ordinance (1349) and then Statute of Labourers (1351), to set maximum wages. The final piece of legislation for this era was the 1388 ‘Statute of Cambridge’.²⁵ The objective of such legislation was not just to control the wages of hired agricultural labour and rural craftsmen, but also, evidently, also to dissuade villein tenants from seeking freedom to gain more remunerative alternative employments. Some proponents of the ‘feudal reaction’ theory have offered another interesting observation about the effects of this labour legislation: in enforced, these maximum wages, set below current market values, would have restricted the available supply of labour, so that many manorial landlords, lacking sufficient labour, no alternative but to intensify the exaction of labour services from their villein tenants. Indeed, the Statute of Labourers had exacerbated that problem by fixing wages at the unusually low level set in 1346, a still deflationary era when wages for labourers were then 25 percent below the rate that had prevailed in the mid 1330s.²⁶

²⁴ G.A. Holmes, *The Estates of the Higher Nobility in Fourteenth-Century England* (Cambridge, 1957), pp. 85-120. He found that their current, nominal incomes, in the 1370s, were no more than ten percent below that of their nominal income in the 1340s, so that their relative share must have increased if the population had fallen by a third. As Bridbury, ‘Black Death’, p. 580, has noted however: Holmes’ data are based on only one noble estate, and one in the West, outside the traditional Midlands area of classic feudalism. Bridbury also rightly criticizes Holmes for not taking proper account of the post-Black Death inflation, which would have diminished the real value of those nominal incomes.

²⁵ The Ordinance of Labourers, decreed on 14 June 1349, is restated and reissued in T.E. Tomlins, J. Raithby, eds., *The Statutes of the Realm*, 6 vols., Record Commission (London, 1810-22), vol. I, 307-08; for the Statute of Labourers, 25 Edwardi III stat 2. c. 3 *Ibid.*, I, 311-12. It set the maximum summer wages (Easter to Michaelmas) for master masons, carpenters, and tilers, ‘without meat or drink’, at 3d per day; for their servants and labourers, at 1½ d a day; but it also permitted a rate of 4d per day for master free-masons. Wages for the winter season from Michaelmas to Easter were not specifically stipulated, except that they were to be ‘less according to the rate and discretion of the justices’. For the 1388 Statute of Cambridge, see Statute 12 Ricardi II, c.3-c.5 (1388) in *Statutes of the Realm*, vol. II, 56-57: stipulating the annual stipends for agricultural servants and labourers, ranging from the Bailiff of Husbandry, at 13s 4d sterling per year, with clothing, to 6s 0d (72d) for ‘Swineherds, Women Labourers, and Deyrie Women’.

²⁶ See the previous note, and tables 3 - 4, below. Wages for labourers, then only half that for a master craftsmen, had fallen from 2d per day in 1337 (prevailing rate from 1310) to 1.75d per day 1338 and 1339, then to 1.50d in 1340 (prevailing rate to 1351). See Henry Phelps Brown and Sheila Hopkins, ‘Seven Centuries of Building Wages’, *Economica*, 22:87 (August 1955), 195-206; and Henry Phelps Brown and Sheila Hopkins, ‘Seven Centuries of the Prices of Consumables Compared with Builders’ Wage-Rates’,

My own investigation of this important issue did not convince me that enforcement of this legislation was all that effective, principally because, as I have stated, ‘virtually all of them [manorial accounts] demonstrate that most of the wide variety of wages so recorded were substantially above those permitted by’ the Ordinance and Statute.²⁷ Furthermore, in 1350, the City of London issued an ordinance to fix maximum wages for building craftsmen that were double those permitted by the Ordinance;²⁸ and by the 1370s, most private employers of such labour in London were also ignoring their 1350 civic ordinance.²⁹ This complex debate, however, need not detain us further, except to note a view common amongst many historians that any

Economica, 23:92 (Nov. 1956), 296-31: both reprinted in Henry Phelps Brown and Sheila Hopkins, *A Perspective of Wages and Prices* (London: Methuen, 1981), pp. 1-12, 13-59; John Munro, ‘Wage-Stickiness, Monetary Changes, and Real Incomes in Late-Medieval England and the Low Countries, 1300 - 1500: Did Money Matter?’ *Research in Economic History*, 21 (2003), 185-297, esp. pp. 207-11; John Munro, ‘Builders’ Wages in Southern England and the Southern Low Countries, 1346 -1500: A Comparative Study of Trends in and Levels of Real Incomes’, in Simonetta Cavaciocchi, ed., *L’Edilizia prima della rivoluzione industriale, secc. XIII-XVIII*, Atti delle “Settimana di Studi” e altri convegni, no. 36, Istituto Internazionale di Storia Economica “Francesco Datini” (Florence: Le Monnier, 2005), pp. 1013-76: Tables 2, pp. 1051-53, Table 7, pp. 1064-66; and figures 1-9, pp. 1067-76; John Munro, ‘Before and After the Black Death: Money, Prices, and Wages in Fourteenth-Century England’, in Troels Dahlerup and Per Ingesman, eds., *New Approaches to the History of Late Medieval and Early Modern Europe: Selected Proceedings of Two International Conferences at The Royal Danish Academy of Sciences and Letters in Copenhagen in 1997 and 1999*, Historisk-filosofiske Meddelelser, no. 104 (Copenhagen: The Royal Danish Academy of Sciences and Letters, 2009), pp. 335-64, esp. pp. 335-47, with tables 1-3.

²⁷ Munro, ‘Black Death’, p. 353; see also Munro, ‘Wage Stickiness’, pp. 210-11. See also E. B. Fryde and Natalie Fryde, ‘Peasant Rebellions and Peasant Discontents’, in Edward Miller, ed., *Agrarian History of England and Wales, IV: 1348-1550* (Cambridge and New York: Cambridge University Press, 1991), p. 784, who, in commenting on the 1388 Cambridge statute, states that: There is no evidence that these additional restrictions were effectively enforced and the rest of the labour legislation, while constituting a constant irritant in the eyes of the peasantry, was not certainly not solving the problems of the landowner’.

²⁸ H. T. Riley, ed., *Munimenta Gildhallae Londoniensis: Vol. II: Liber Custumarum* (London, 1860), I, 99-100; II, 541-43; H. T. Riley, ed., *Memorials of London and London Life, in the XIIIth, XIVth, and XVth Centuries: From the Archives of the City of London, A.D. 1276-1419* (London, 1868), pp. 253-55; R. R. Sharpe, ed., *Calendar of Letter-Books Preserved Among the Archives of the City of London at the Guildhall: Letter-Book G. c.A.D. 1352-1374* (London, 1905), pp. 148, 301; *Letter Book H., c.A.D. 1375-1399* (London, 1907), p. 184.

²⁹ Munro, ‘Black Death’, pp. 344-9; Munro, ‘Wage-Stickiness’, pp. 198-200. Nevertheless I admitted the possibility that such legislation ‘may have served to restrict the full impact of those forces driving up real wages, and in particular may have led to the elimination of some seasonal wages’, for only summer wages were regulated by these ordinances. For an opposing view, see John Hatcher, ‘England in the Aftermath of the Black Death’, *Past & Present*, no. 144 (August 1994), pp. 3 - 35.

post-plague ‘Feudal Reaction’ lost its power in the aftermath of the abortive ‘Peasants’ Revolt’ or ‘English Rising’ of 1381. For although that revolt was brutally crushed, landlords had won only a Pyrrhic victory, when the crown (according to this viewpoint) made clear its reluctance to employ such force ever again, not at least for the sake of landlords.³⁰ Or, we may more simply conclude that, thereafter, most manorial lords saw no useful purpose in trying to maintain whatever serfdom or villeinage remained in late-medieval England, for other and purely rational economic reasons.

A monetary model for late-medieval manorialism: the role of deflation in the decline of manorial farming and serfdom during the ‘bullion famine’ of ca. 1370 - ca. 1420

Since a monetary model was utilized at the beginning of this study to explain the shift from *Grundherrschaft* to *Gutsherrschaft* in Brandenburg during the sixteenth century, perhaps a similar model may be employed to help explain the reverse shift in the fourteenth, early fifteenth century England: i.e., from *Gutsherrschaft* to *Grundherrschaft*. The use of such a monetary model, combined here with very important fiscal factors, is not intended, however, to exclude or deny the importance and indeed complementarity of the demographic models just discussed.³¹

The essence of the proposed monetary model is simple, and contains two parts. The first part and major contention of this model is that from the 1370s to the 1420s England – and much of northwestern Europe, as well – experienced a severe monetary contraction that produced an equally severe deflation.

³⁰ See Hilton, ‘Peasant Movements in England Before 1381’, pp. 117-36; Rodney H. Hilton and H. Fagan, *The English Rising of 1381* (London, 1950); Rodney H. Hilton, *Bond Men Made Free: Medieval Peasant Movements and the English Rising of 1381* (London and New York: Methuen, 1973); Hilton, *Decline of Serfdom*; R.A. Dobson, ed., *The Peasants’ Revolt of 1381* (London, 1970); R.H. Hilton and T.H. Aston, eds., *The English Rising of 1381*, Past and Present Publications (Cambridge, 1984), especially Christopher Dyer, ‘The Social and Economic Background to the Rural Revolt of 1381’, pp. 9-42; Fryde, ‘Peasant Rebellions’, pp. 744-819, esp. pp. 772-85; Rigby, *English Society*, pp. 104-27.

³¹ For perceptive surveys of the relevant monetary models, see Rigby, *English Society*, pp. 95-103; Hatcher and Bailey, *Modelling the Middle Ages*, pp. 138-44, 186-92; Nicholas J. Mayhew, ‘Population, Money Supply, and the Velocity of Circulation in England, 1300 - 1700’, *Economic History Review*, 2nd ser., 48:2 (May 1995), 238-57; Nicholas Mayhew, ‘Modelling Medieval Monetisation’, in Richard Britnell and Bruce Campbell, eds., *A Commercialising Economy: England 1086 to c. 1300* (Manchester: Manchester University Press, 1995), pp. 55-77.

Those who still believe that population and related demographic forces were the ‘prime mover’ should realize that the Black Death of 1348-49, ended a quarter-century of severe deflation, and it was followed by another quarter century of equally severe inflation – not just in England, but all across western Europe.³² The deflation that finally ensued from the later from the later 1370s thus came long after the major period of population decline, even if that decline continued into the early sixteenth century.³³ The voluminous evidence (set forth in many tables) and the arguments for the thesis that monetary factors were essentially responsible for this deflation have been set forth in many of my publications – so that it need not be repeated here.³⁴ Various other prominent historians have also contributed to this debate

³² See Munro, ‘Wage-Stickiness’, pp. 185-297; Munro, ‘Black Death’, pp. 335-64 (in n. 22 above); and also the sources cited below, in nn. 30-33.

³³ For evidence on the prolongation of demographic decline to the 1520s, see: Bruce M. S. Campbell, ‘The Population of Early Tudor England: A Re-evaluation of the 1522 Muster Returns and the 1524 and 1525 Lay Subsidies’, *Journal of Historical Geography*, 7 (1981), 145-54; Julian Cornwall, ‘English Population in the Early Sixteenth Century’, *Economic History Review*, 2nd ser. 23:1 (April 1970), 32-44; Ian Blanchard, ‘Population Change, Enclosure, and the Early Tudor Economy’, *Economic History Review*, 2nd ser. 23:3 (December 1970), 427-45; John Hatcher, *Plague, Population, and the English Economy, 1348-1530* (Studies in Economic History series, London, 1977), pp. 11-73; John Hatcher, ‘Mortality in the Fifteenth Century: Some New Evidence’, *Economic History Review*, 39 (Feb. 1986), 19-38; John Hatcher, ‘Understanding the Population History of England, 1450 - 1750’, *Past & Present*, no. 180 (August 2003), 83-130; John Hatcher, A. J. Piper, and David Stone, ‘Monastic Mortality: Durham Priory, 1395 – 1539’, *The Economic History Review*, 2nd ser., 59:4 (November 2006), 667-687.

³⁴ John H. Munro, *Bullion Flows and Monetary Policies in England and the Low Countries, 1350 - 1500*, Variorum Collected Studies series CS 355 (Aldershot, Hampshire; and Brookfield, Vermont: Ashgate Publishing Ltd., 1992); John Munro, ‘Mint Policies, Ratios, and Outputs in England and the Low Countries, 1335-1420: Some Reflections on New Data’, *The Numismatic Chronicle*, 141 (1981), 71-116. [formerly listed as: 8th series, Vol. I]; John Munro, ‘Bullion Flows and Monetary Contraction in Late-Medieval England and the Low Countries’, in John F. Richards, ed., *Precious Metals in the Later Medieval and Early Modern Worlds* (Durham, North Carolina: Carolina Academic Press, 1983), pp. 97-158; John Munro, ‘Mint Outputs, Money, and Prices in Late-Medieval England and the Low Countries’, in Eddy Van Cauwenberghe and Franz Irsigler, eds., *Münzprägung, Geldumlauf und Wechselkurse/ Minting, Monetary Circulation and Exchange Rates*, Trierer Historische Forschungen, vol. 7: Akten des 8th International Economic History Congress, Section C-7, Budapest 1982 (Trier: Trier University Press, 1984), pp. 31-122; John Munro, ‘Deflation and the Petty Coinage Problem in the Late-Medieval Economy: The Case of Flanders, 1334 - 1484’, *Explorations in Economic History*, 25:4 (October 1988), 387-423; John Munro, ‘Patterns of Trade, Money, and Credit’, in James Tracy, Thomas Brady Jr., and Heiko Oberman, eds., *Handbook of European History in the Later Middle Ages, Renaissance and Reformation, 1400 - 1600*, 2 vols. (Leiden: E.J. Brill, 1994-95), Vol. I: *Structures and Assertions* (1994), pp. 147-95; John Munro, ‘Gold, Guilds, and Government: The Impact of Monetary and Labour Policies on the Flemish Cloth Industry, 1390-1435’,

about the late-medieval ‘bullion famines’. My chief difference with its leading proponents is my contention that the monetary contraction was due more a decline in the income velocity of money (i.e., in part, aggravated hoarding) rather than to any major contraction in the supply of precious metals.³⁵

What cannot be disputed is the extent and the severity of this deflation. In England, the five-year or quinquennial mean Consumer Price Index (Composite ‘Basket of Consumables’ Index) fell 24.81 percent from the peak of 1361-65 (137.866) to the trough of 1421-25 (103.740).³⁶ In cross-Channel Flanders, coinage debasements postponed the inevitable deflation until the early 1390s. Then, the quinquennial mean Consumer Price Index fell from the peak of 1386-90 (124.719) to the trough of 1411-15 (95.309), by a comparable 23.58 percent.³⁷ The subsequent deflations that took place in both countries, during the next ‘bullion famine’ of the mid-fifteenth century, were somewhat more severe: in

Jaarboek voor middeleeuwse geschiedenis, 5 (2002), 153 - 205; Munro, ‘Wage Stickiness’, pp. 185-297; Munro, ‘The Monetary Origins of the Price Revolution’, pp. 335-64.

³⁵ See John Day, ‘The Great Bullion Famine of the Fifteenth Century’, *Past and Present*, no. 79 (May 1978), 1-54; reprinted in John Day, *The Medieval Market Economy* (Oxford, 1987), pp. 1-54; Harry Miskimin, ‘Monetary Movements and Market Structures: Forces for Contraction in 14th and 15th Century England’, *Journal of Economic History*, 24 (1964): 470-90; reprinted with other relevant studies in Harry A. Miskimin, *Cash, Credit, and Crisis in Europe, 1300-1600*, Variorum Reprints CS 289 (London, 1989); Harry Miskimin, *The Economy of Early Renaissance Europe, 1300-1460* (1969; reissued Cambridge, 1975), 138-50; Peter Spufford, *Money and Its Use in Medieval Europe* (Cambridge, 1988), chapter 15, ‘The Bullion Famines of the Later Middle Ages’, pp. 339-62. I disagree with their view that the principal cause of the monetary contraction was an increased flow of precious metals in financing a chronic trade deficit with the Levant and other parts of Asia. See also Pamela Nightingale, ‘Monetary Contraction and Mercantile Credit in Later Medieval England’, *Economic History Review*, 2nd ser. 43 (November 1990), 560 - 75.

³⁶ See Tables 1-2, below; and Table 6, for the construction of the Consumer Price Index in the base period, 1451-75. All the price indices given in this study are based on the Phelps Brown and Hopkins mean of 1451-75 = 100. The previous English deflation was, to be sure, far more severe: a fall of 44.66 percent in the quinquennial mean CPI from the peak of 1316-20 (154.560) to the trough of 1341-45 (85.533); but that peak was due to the highly fortuitous ‘real shocks’ of the Great Famine.

³⁷ Munro, ‘Wage-Stickiness’, Table 8, pp. 249-50; Munro, ‘Builders’ Wages’, pp. 1013-76; Table 1, pp. 1048-1049, for the construction of the Flemish Consumer Price Index in the base period, 1451-75; and Table 3, pp. 1053-54, for the Flemish CPI, in quinquennial means from 1351-55 to 1496-1500; Munro, ‘Black Death’, Table 2, p. 338-39; Table 3, pp. 342-43; and figures 1 - 4, pp. 350-51. Note that these earlier publications used the actual Phelps Brown and Hopkins price indexes, and not my recently revised series. For Phelps Brown and Hopkins, see n. 22 above.

England, a fall of 25.40 percent in the quinquennial mean CPI, from the peak of 1436-40 (124.218) to the trough of 1476-80 (92.667); in Flanders, an even steeper decline of 36.71 percent, from the same peak of 1436-40 (140.166) to the earlier trough of 1461-65 (88.705), followed by more coinage debasements.³⁸

As Tables 1 and 2 below demonstrate, the quinquennial price indexes for English wools, other livestock products, and farinaceous products (wheat, rye, barley, peas) also fell during the first ‘bullion famine’ era, if not necessarily exactly in tandem with the overall Consumer Price Index. For both of these ‘bullion famine’ eras (ca. 1370-1420; ca. 1440-1470), the other sources cited for both Flanders and England demonstrate the same behaviour of relative prices for these products, and also for industrial products.³⁹

The behaviour of agricultural commodity prices, ca. 1370 - ca. 1420

That such a decline in commodity prices – if not in factor prices – was not just confined to grains but was far more general, and indeed included industrial prices as well, vindicates the view that both of these ‘bullion famine’ eras experienced a genuine monetary deflation.⁴⁰ While the previously discussed

³⁸ See Munro, ‘Wage-Stickiness’, Tables 5, pp. 240-41, Tables 8-10, pp. 249-53. For the ‘bullion famine’ and ‘depression’ of the mid fifteenth century see the sources cited in nn. 30-31 above, and also John Hatcher, ‘The Great Slump of the Mid-Fifteenth Century’, in Richard Britnell and John Hatcher, eds., *Progress and Problems in Medieval England* (Cambridge and New York: Cambridge University Press, 1996), pp. 237-72; Pamela Nightingale, ‘England and the European Depression of the Mid-Fifteenth Century’, *The Journal of European Economic History*, 26:3 (Winter 1997), 631-56; Nicholas Mayhew, ‘The Monetary Background to the Yorkist Recoinage of 1464-1471’, *British Numismatic Journal*, 44 (1974), 62-73.

³⁹ See the sources cited in nn. 30-34 above.

⁴⁰ That deflation also included (in both England and the Low Countries) a decline in industrial prices, though that decline was not as extensive as the fall in agricultural prices. See Munro, ‘Wage-Stickiness’, pp. 185-297, esp. Table 5, pp. 240-42, Tables 8-9, pp. 249 -51; Munro, ‘Black Death’, Table 2, pp. 338-89; figures 1-4, pp. 350-52; and other sources cited above in nn. 30-34. Michael Postan, in lacking the abundant data available to modern-day historians, was in error in stating the following: (1) ‘price changes which are not “general” but are mainly confined to grain point to a factor which has already been shown to have operated in the opposite direction in the early centuries of the Middle Ages, i.e., population’; and (2) that ‘a fall in population would also have, so to speak, a selective effect on prices, in that it would tend to lower the prices of agricultural products, which were previously being produced at high and every rising cost ... under steeply diminishing returns... but would have little effect on commodities not greatly subject to diminishing returns, i.e., most industrial products; [and thus]... the movements of agricultural and industrial prices did not synchronize.’ From Michael M. Postan, ‘The Trade of Medieval Europe: the North’, in M.M.

demographic model does explain – apart from the time-lag problem – why falling population would lead to lower grain prices, it does not adequately explain the concurrent and similar fall in the prices of wools and other livestock products. For one of the tenets of the standard demographic model is that, with both a low price- and income-elasticity for grains, and with the large share of cereal products in the consumer basket (see Table 6), falling grain prices should have liberated more consumer income to be spent on a wide variety of livestock products: meat, milk, butter, cheese, leather (hides), and of course wool-based textiles, all of which enjoyed a far higher degree of both income- and price-elasticity of demand. The former is the more important of the two: that a small increase in *real* incomes should lead to a disproportionate increase in the *quantity* demanded. That consumer shift and relative increase in demand for those products should have subsequently have led to a rise in their *relative* prices, i.e., in relation to grain prices. To some small extent there was such a *relative* shift, as may be seen in Tables 1 and 2, but hardly enough to offset the very dramatic fall in their nominal prices, as also demonstrated in these tables.

In view of the importance of all these agricultural prices – for grains (wheat, barley, rye in these tables), wools, and other livestock products – for demesne agricultural production, especially in the champion ‘sheep-corn’ (livestock-grain) mixed husbandry regions of the central Midlands and eastern counties, the behaviour of these price series in Tables 1 and 2 are even more instructive. An analysis of all the factors involved in these relative price changes is, of course, far too complex to be within the scope of this study, except for those specific factors, including political factors, that significantly affected the course of wool prices, from the 1370s to the 1420s, as will be seen later in this study.

All of these commodity price changes are given here in quinquennial means and are again expressed in terms of index numbers, with a common base of 1451-75 (mean price = 100). Wool prices

Postan and E.E. Rich, eds., *Cambridge Economic History of Europe*, Vol. II: *Trade and Industry in the Middle Ages* (Cambridge, 1952), pp. 119-256; republished, with a few changes, in the 2nd revised edn, ed. M.M. Postan and Edward Miller (Cambridge, 1987), pp. 168-305; and in M. M. Postan, *Medieval Trade and Finance* (Cambridge, 1973), pp. 92-31 (with bibliography). The two quotations are from pp. 213-14 in the first, original edition.

(for the better quality wools exported to Calais) fell 41.84 percent from the peak of 1371-75 (162.64) to the trough of 1416-20 (94.590) – a far more drastic fall than that in the overall Consumer Price Index. Livestock product prices (beef, pigs, mutton, excluding wools) fell 35.11 percent, from the peak of 1371-75 (143.653) to the trough of 1421-25 (93.213). Finally, the farinaceous product index (wheat, rye, barley, peas) fell 39.26 percent, from the peak of 1366-70 (150.487) to the trough of 1411-15 (91.411). Thus, while all three commodity price indexes fell roughly in tandem, the greatest decline was in the wool price index, if not by that much, over the other two.

A fairer comparison of such price changes would one with a common or uniform time period: the half-century, from 1370 to 1420 (with measurement taken from values in the quinquennium 1366-70). Over this period the Consumer Price Index fell 16.72 percent (from 136.460 to 113.598); the wool-export price index fell 31.36 percent (from 137.800 to 94.590); the livestock products price index fell 21.70 percent; and the farinaceous products price index fell 24.20 percent (from 150.487 to 114.066 – but to 91.441 in 1411-15). While this peak-to-trough comparison again suggests that the fall in wool prices was the most severe, it does not take into full account shorter term fluctuations. The final three columns of Table 10 present, in order, ratios of wool prices to grain prices, ratios of wool prices to the CPI, and ratio of grain prices also to the CPI. In many of these quinquennial, wool prices performed better than grain prices (i.e., did not fall as much).⁴¹ Nevertheless, as these tables and corresponding graphs make crystal clear the fall in all these commodity prices was a severe one to endure those manorial lords dependent upon the commercial exploitation of their demesnes.

The behaviour of factor prices: 1370s to 1420s

The second and fundamentally necessary part of this model is that, while consumer prices, and these commodity prices declined, and fell steeply, the factor costs of production generally did not fall,

⁴¹ In Table 10, the numerator is the first price named and the price with which it is compared is the denominator. If the index number moves above 100, that ‘numerator’ price series has performed better – with relatively higher prices (even if both sets of prices are falling) – than the ‘denominator’ price series.

and indeed rose in real terms. In this respect, any good economist will stress the point that it is an ignorant fallacy to believe that, during periods of either inflation or deflation, in which monetary factors are paramount, all prices must move together, exactly in tandem.⁴² While many or even most market-determined commodity prices may move more or less together, as indeed just shown, factor prices and thus production costs generally do not do so, for a wide variety of reasons, some of which – in terms of factor price ‘stickiness’ I have explored elsewhere.⁴³

For those manorial lords who had so strongly relied on the commercial exploitation of their demesnes, their primary production costs lay in labour and capital: i.e., in wages – explicit or implicit – and in interest.⁴⁴ We have virtually no reliable data on nominal interest rates for late-medieval England, though those that do exist do not demonstrate any fluidity.⁴⁵ For our purposes, the issue is not nominal interest rates, but *real* interest rates, whose definition is: the nominal rate of interest *minus* the annual rate of inflation (percentage annual change in the Consumer Price Index); or, conversely, for the period concerned here, the nominal interest rate *plus* the annual rate of deflation. Most manorial lords were chronic borrowers; and to the extent that they incurred loans or mortgages to finance capital investments in demesne production they often did so on fairly long terms. Thus, with the deflation already demonstrated, the annual cost burdens of their annual interest payments – especially in relation to the

⁴² In her review of Frank Spooner, *The International Economy and Monetary Movements in France, 1493-1725* (Cambridge, Mass., 1972), in *The Journal of European Economic History*, 3: 1 (Spring 1974), 253, Anna Jacobson Schwartz commented that: ‘the author subscribes to a familiar fallacy, namely that a monetary explanation to be valid requires that all prices move in unison’.

⁴³ Munro, ‘Wage Stickiness’, pp. 185-97; Munro, ‘Black Death’, pp. 335-64.

⁴⁴ For the sake of this argument and this model, we will ignore rent: on the assumption that manorial lords as feudal lords, and thus as vassals of superior lords, paid rent in the form of military or other feudal services; and that any money rents were nominal and low, in real terms. We also assume that they owned and did not rent capital equipment and capital installations.

⁴⁵ See Sidney Homer and Richard Sylla, *A History of Interest Rates*, 3rd rev. edn (New Brunswick and London: Rutgers University Press, 1991), pp. 136-43: Table 11 (p. 137), and chart 2 (p. 140). Their evidence indicates perfectly flat nominal interest from the Black Death to the later fifteenth century, but no specific interest rates for England before 1500: when they were and also remained flat at 10 percent.

much lower prices fetched for the sales of farm products – rose in a corresponding fashion. Indeed, Raftis refers to the growing plight of the Ramsey Abbey estates in the 1370s and 1380s, as ‘a period of lower prices and increasing capital costs on the demesne’.⁴⁶

The evidence on manorial wages in late fourteenth-century England

The wage data presented in this paper are to be found in Tables 3 - 5. The first two are not manorial, but are for urban craftsmen (masters and labourers) in the building trades, whose data have been drawn from a wide variety of small towns in the southern Midlands and the south-east. They were originally compiled by Phelps Brown and Hopkins, and largely drawn on research data from Thorold Rogers and Beveridge; but I have amended or supplemented the data from my own research (often by filling in lacuna).⁴⁷ In addition to the urban wages that they have collected, I have also added wages from Canterbury, Exeter, Dover, Winchester, and York. I have also collected a very large amount of manorial wage data, but have not fully collated and processed those data.⁴⁸

⁴⁶ Raftis, *Peasant Economic Development*, p. 68.

⁴⁷ J. E. Thorold Rogers, *A History of Agriculture and Prices in England, 1259-1793*, 7 vols. (Oxford: 1866-1902); and Phelps Brown and Hopkins, ‘Seven Centuries of Building Wages’, pp. 1- 12. The wages are primarily for stone- and brick-masons, carpenters, pavers, tilers, thatchers, daubers, and their journeymen labourers. For the Beveridge data, see the next note.

⁴⁸ For the following urban and manorial records, in: (1) Archives of the British Library of Political and Economic Science [BLPES], the Beveridge Price and Wage History Collection: Canterbury, 1393-1600 (Box D.3); Dover, 1227-1565 (Box H.13-14); Exeter (Exebridge Accounts), 1338-1600 (Box F.1); Westminster Abbey, 1393-1541 (Box P.10); Winchester College, 1354-1513 (Box F.8); York, 1354-1513 (Box I.10); Battle Abbey: Alciston Manor, 1336-1487 (Boxes H.10-11); Downton, 1257-1306 (Box C.157); Esher, 1257-1306, 1270-1308, and 1300-1453 (Boxes C. 157, A.31-32); Hinderclay (Suffolk), 1262-1405 (Box G.14); Itchingswell (Ecchinswell), 1270-1453 (Box A.33); Meon, 1257-1306 (Box C.157); Nailsbourne, 1257-1306 (Box C.157); Overton, 1309-1453 (Box A.33); Redgrave (Suffolk), 1323-1492 (Box G.14); Southwark (Bishop of Winchester), 1406-1454 (Box A.34); Taunton, 1270-1308, 1309-1453 (Boxes A.31-32); Wargrave, 1257-1306 (Box C.157); Witney, 1257-1306 (Box C.157); Wycombe, 1257-1306, 1309-1453 (Boxes C.147, A.33); (2) The London Guildhall Manuscripts Library: Armourers’ Company Accounts (1499-1557): MS 12.065, vol. I; Bakers’ Audit Books (1505-1547), MS 5174, vol. 1; Brewers’ Guild, Warden’s Accounts (1424-1562): MS 5440; Carpenters’ Guild, Warden’s Accounts (1456-1573): MS 4326, vols. I and II; Cutlers’s Guild Accounts (1442-1497): MS 7146, roll 1; Grocers’ Guild, Warden’s Accounts (1452-1578): MS 11,570-571, vols. I - VI; Ironmongers’ Guild Accounts (1455-1561): MS 11,698: Vols. I - II; Pewterers’ Company Accounts (1474-1500): MS 7086, Vol. I; (3) Corporation of London Record Office: Bridge Master’s Account Rolls, 1381-1398; Bridge Master’s Accounts: Weekly Payment Series, 1404- 1510 (Vols.

The craftsmen's wages, including all manorial wages, as well as urban wages, are time-based: usually silver-cash payments for a day's labour. The wages are either 'summer' wages or year-around wages; seasonal wages – i.e., lower wages for winter work – which continued to be prevalent in the Low Countries – largely disappeared in England after the Black Death – or rather, after the Statute of Labourers, which regulated only summer wages.⁴⁹ As I have suggested elsewhere the elimination of seasonal wages may have been one way in which employers circumvented the various wage-ordinances.⁵⁰ All of the wages presented here are those that constitute the sole payment for work done: i.e., they do not include food, drink, clothing, or other payments in kind.⁵¹ In the manorial accounts, the distinctions are usually obvious: those paid money wages alone are clearly distinguished from those who were paid supplements in kind. In general, payments in kind, when so given, were about half the total pay package before the Black Death; and after the Black Death, the proportion (within a generation) paid in kind fell to one third. That itself may reflect the enhanced bargaining power of artisans and labourers, most of whom clearly preferred to be paid in money than in kind.⁵² Another general change in wage payments that may also reflect the enhanced bargaining power itself, without additional factors involving rank and status, is the ratio between a master's and his labourer's money wage: that the standard ratio of a

I - III). See also Munro, 'Wage Stickiness', pp. 185-97; and Munro, 'Builders' Wages', pp. 1013-76.

⁴⁹ See n. 21 above: as indicated, winter wages, from Michaelmas to Easter, were to be 'less according to the rate and discretion of the justices'.

⁵⁰ See John Munro, 'Urban Wage Structures in Late-Medieval England and the Low Countries: Work-Time and Seasonal Wages', in Ian Blanchard, ed., *Labour and Leisure in Historical Perspective, Thirteenth to Twentieth Centuries*, Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte Beiheft series, no. 116 (Stuttgart: Franz Steiner Verlag, 1994), pp. 65-78; Munro, 'Builders' Wages', pp. 1013-76.

⁵¹ On this issue, see the very pertinent observations in William Beveridge, 'Wages in the Winchester Manors', *Economic History Review*, 1st ser., 7 (1936-37), 22-43, esp. pp. 36-37. I, and many others doing research on late-medieval wages in the Low Countries, have found the same in payments accounts. See Munro, 'Wage-Stickiness', pp. 200-04.

⁵² The documentary evidence for that distinction, and the growing resistance against payments in kind or 'in truck' is often more clearly observable in the late-medieval Low Countries. See Munro, 'Urban Wage Structures', pp. 65-78; Munro, 'Builders's Wages', pp. 1013-76.

labourer's daily wage rose from 50 percent of master's rate before the Black Death to 60 percent of the master's wage rate shortly after the Black Death to 67 percent by the early fifteenth century (Table 4).

Some other generalizations on changes in English wages may now also be useful. As is so well known, *nominal* money wages for both agricultural workers and craftsmen, urban and rural, did indeed rise after the Black Death, though for building craftsmen and their labourers not by as much as is so often assumed. Before the Black Death urban (i.e., small-town) craftsmen's wages had in fact fallen from 4d daily in the 1320s and early 1330s to 3d per day in the early 1340s; and (some) manorial craftsmen's wages had similarly fallen from about 3d per day to 2.5d per day (Redgrave) or even to 2d (Witney: Winchester). As Table 4 indicates, the mean of urban craftsmen's daily wages rose from: 3.0d in 1346-50 to 3.6d in 1351-55 to 4.6d in 1356-60 – a big jump, indeed – to 5.0d in 1361-65. At the colleges of Oxford and Cambridge, however, the wages for such building craftsmen had risen from 5d to 6d per day about 1363 – and the standard daily wage then remained at that fixed rate until 1536! But wages for such building craftsmen in the other medium-sized towns – generally remained at 5d per day until about 1410-15, just before the wage rates for most London building craftsmen had risen from 7d or 7.5d (from the 1370s) to 8d per day. In rural areas, manorial wages for such craftsmen had risen to 4d per day after the Black Death (e.g., Battle Abbey, Winchester manors, Redgrave) – but that had been the prevailing daily money wage in the 1330s (Redgrave, Overton, Croyland Abbey, Westminster – though not at Wycombe and Ecchinswell). By the early fifteenth century (around 1411-15, as just noted: in quinquennial means), the standard rate for building craftsmen in small towns had risen from 5d to 6d daily (by small increments from ca. 1400), while the aforesaid manorial wages for these craftsmen had also risen, in a similar fashion: from 4d to 5d per day. Such wage rates then remained constant for the rest of the fifteenth and early sixteenth centuries.⁵³

⁵³ Redgrave Manor belonged to the Abbey of Bury-St. Edmonds, near Hinderclay, Suffolk). See n. 41 above for the archival source: Beveridge Wage and Price Series, in BLPES . See also Beveridge, 'Wages in the Winchester Manors', Table III, 'Day Wages of Carpenters', in p. 40. It provides decennial means with somewhat higher wage data, with irregular figures. In my view this constitutes a 'compositional error' by

In general, there was a basically fixed hierarchy of relationships of craftsmen's wage throughout the entire period of this study: the lowest were the manorial wages (Winchester manors, Westminster manors, Battle Abbey, Redgrave Manor); in the middle were those of the small towns (as listed above); and the highest, not surprisingly, were the London wages. The one exception concerning manorial wages also concerned London: for the craftsmen's wages on the Winchester manor of Southwark (now in modern London). By the fifteenth century, they were virtually always the same as those paid by the London Tower Bridge authority (long-term contracts) and those of the various London guild houses (very short term contracts).⁵⁴ At Westminster Abbey itself (in London), however, not until 1439-40 were its craftsmen's wages were not increased to the otherwise London standard wage of 8d daily (without food, drink, or clothing).⁵⁵ All those wages were then well above those permitted by even the London wage ordinances.⁵⁶

Such wage data do have utility for an analysis of later-medieval English demesne economies, in that they reflect an 'opportunity-cost' factor in a manorial lord's wage calculations for agricultural employment. To the extent that villein peasants, cottars, and hired agricultural workers were gaining greater freedom of movement, or could enjoy greater mobility – especially the villeins – and were better

averaging wages of craftsmen with different skills, rather than ascertaining a standard or prevailing wage. See my comments in Munro, 'Wage Stickiness', pp. 196-97. See below, pp. 22-24 and n. 53.

⁵⁴ See the sources in n. 41, above. See also Beveridge, 'Wages in the Winchester Manors', p. 34: he notes that wages at Southwark in the thirteenth century were in accordance with those at other Winchester manors.

⁵⁵ See the sources cited in n. 41; and for a more detailed discussion of this evidence, see Munro, 'Wage Stickiness', pp. 210-11, Munro, 'Black Death', pp. 344-49.

⁵⁶ Not until 1495 did Parliament recognize London's special status within the kingdom, and its much higher cost of living, with legislation to authorize these rates permitted in the 1350 London ordinance: of 6d and 5d per day, respectively (but only 4d daily with food and drink), with some minor exceptions. Of course the prevailing London wages were then far higher than these, and had been for over a century. See Statute 11 Henry VII c. 22 (1495), in *Statutes of the Realm*, vol. II, pp. 585-87. The major exception was a maximum daily rate of 7d, summer and winter, for those senior or chief master masons and carpenters employing or supervising six or more men; or a rate of 5d daily, with food and drink. See n. 21 above.

able to seek such alternative employment (if they had the skills and volition), with rising wages elsewhere – and also rising craftsmen’s wages on their own manors, they would retain labour only with difficulties, if they paid significantly lower real wages. Presumably, the lower manorial wages revealed here reflect a lower cost of living in rural areas (and/or some remaining degree of immobility).

The presentation of wage data for medieval English agricultural workers, provided here in Table 5, is highly problematic. I myself have not found a satisfactory solution for the presentation of a large quantity of farm wages that are to be found in many manorial accounts. For the vast majority are piece-work wages for threshers, winnowers, binders, reapers, mowers: i.e., payments for the quantity of work done, without any reference to the time taken to fulfill these tasks (with some rare exceptions).⁵⁷ Those wages recorded for ploughmen have almost no utility because of their unvarying nature; and evidently they are a notional value assigned to servile ‘week-works’.⁵⁸ Rising piece rates might have meant less work done per day, though of course they represented a higher unit cost for manorial employers.

Gregory Clark, however, has recently published ‘estimated’ daily wages for English farm workers by using complicated regression analysis to splice together threshing piece-work wages, for

⁵⁷ For presentations of such agricultural wages – which I find unsatisfactory – see David Farmer, ‘Prices and Wages [1042-1350]’, in H. E. Hallam, ed., *The Agrarian History of England and Wales*, Vol. II: *1042-1350* (Cambridge, 1988), pp 760-78, 811-17; and David Farmer, ‘Prices and Wages, 1350-1500’, in Edward Miller, ed., *The Agrarian History of England and Wales*, Vol. III: *1348-1500* (Cambridge, 1991), pp.467-90, 516-24; Gregory Clark, ‘The Long March of History: Farm Wages, Population, and Economic Growth: England, 1209-1869’, *The Economic History Review*, 2nd ser., 60:1 (February 2007), 97-135; Gregory Clark, ‘Work, Wages and Living Conditions: Building Workers in England from Magna Carta to Tony Blair’, in Simonetta Caviococchi, ed., *L’Edilizia prima della rivoluzione industriale, secc. XIII-XVIII*, Atti delle “Settimana di Studi” e altri convegni, no. 36, Istituto Internazionale di Storia Economica “Francesco Datini” (Florence, 2005), pp. 889-932. See also his highly controversial book: Gregory Clark, *A Farewell to Alms: A Brief Economic History of the World* (Princeton, NJ: Princeton University Press, 2007); *European Review of Economic History: Symposium of Gregory Clark’s A Farewell to Alms*, 12:2 (August 2008): with contributions by McCloskey, Voth, Grantham, Persson, and Clark; Robert C. Allen, ‘A Review: of Gregory Clark’s *A Farewell to Alms: A Brief Economic History of the World*’, *Journal of Economic Literature*, 46:4 (2008), 946-73.

⁵⁸ For example, on the Winchester manor of Overton, the payments for ploughmen were consistently recorded as 6d for 112 acres, for the entire period from 1309 to 1453. British Archives of Political and Economic Science, Beveridge Papers, Box A. 33 (see n. 41 above).

bushels of grain, with what are assumed to be daily time-wages, correctly noting that ‘piece-rate payments were much more abundant for the middle ages than day wages’.⁵⁹ In Table 5, I have compared his data for the estimated ‘daily’ wages of farm workers across England with those for building labourers (in the small towns indicated above). Before the Black Death, the latter (for urban labourers) was, as expected, somewhat higher than those for Clark’s; but immediately after the Black Death, Clark’s farm-workers’ wages rise, sharply and suddenly, to a level much higher than those for the aforesaid urban labourers: from 136-50 to 1351-55, the mean rises by an astonishing 53.11 percent. Beveridge’s published data on rates for threshing and winnowing at eight Winchester manors show, however, only a mean rise of only 2.98 percent in the decade following the Black Death.⁶⁰ Farmer’s more ‘national’ data show a larger post-Plague increase; but still only one of 11.52 percent.⁶¹ Clark’s data are also, evidently, England-wide; and, as I have remarked elsewhere such data compilations usually involve some ‘compositional errors’: by averaging wage data for different qualities, skills, and local circumstances. If the composition of the data is altered from year to year, the results may be misleading changes in the quinquennial or decennial means.⁶²

Clearly, the agricultural wags, or piece-work rates for various agricultural tasks rose with the post-Plague inflation: i.e., from ca. 1350 to the 1370s; but some continued to rise, though only briefly, after that inflation had peaked by the end of the 1360s. For the sake of comparison, this time using decennial means, we may note, from Tables 3-4, that the Consumer Price Index for southern England

⁵⁹ Clark, ‘Long March of History’, p. 101; and Table 1, pp. 99-100. For the regression analysis and computations of the estimated day wages, see the Appendix: pp. 129-35.

⁶⁰ Beveridge, ‘Winchester Manors’, Table I, p. 38. Beveridge uses decennial means, while Table 5 (based on Clark’s data) uses quinquennial means. But if we combine them into decennial means, then the percentage increase from 1341-50 to 1351-60 is even greater in Clark’s data: 62.03%

⁶¹ Farmer, ‘Prices and Wages: 1350-1500’, Table 5.8, p. 471. See also the annual series in his ‘Statistical Appendix’, pp. 516-24.

⁶² Munro, ‘Wage Stickiness’, pp. 196-97.

rose 47.76 percent: from the mean of 92.80 in 1341-50 to a mean of 137.22 in 1361-70. Over this same period, piece rates for reaping/binding (national average) in Farmer's data rose 57.07 percent: from 5.87 in 1340-47 to 9.22d in 1370-80 per acre; for mowing, 53.13 percent, from 4.95d to 7.58d per acre; and 40.52 for threshing/winnowing per bushel. But thereafter, the reaping rates fall 5.31 percent, by 1390-1400 (to 8.73d); those for mowing, by 10.42 percent (to 6.79d); those for threshing/winnowing, by 1.03 percent.⁶³ Clark's estimated 'farm wage' data (also national) rose far more, by 90.74 percent, from a mean of 1.62d daily in 1341-50 to the peak mean of 3.105d daily in 1371-80. Thereafter his wage data fall, as well, though only by 3.15 percent, to 3.05 d in 1391-1400.⁶⁴

Beveridge's wage data for threshing and winnowing on eight Winchester manors provide somewhat of an anomaly. From 1340-48 to 1370-79, the mean rate for all Winchester manors rose by 39.17 percent, and thus by less than the rate of inflation. But unlike the other wage data cited, they also did not fall thereafter. Indeed, they exhibit, in contrast, much more of the 'downward wage-stickiness' found with industrial wages. As Table 4 indicates, the daily wage rate for urban labourers doubled from 1.5d in 1341-50 to 3d. in 1361-70 – and then remained fixed at this rate until 1401-10, when the mean rate rose to 3.5d (and then 4.0d, in 1411-15, remaining fixed at that rate until the 1530s). On many Winchester estates, the threshing/winnowing rates remained fixed at 7.25d per bushel, as follows, until the Beveridge data terminate in 1450-59: at Downton, from 1370-79; at Meon, from 1380-89; at Overton, from 1400-09; at Ecchinswell (where they had been previously lower), from 1410-19. At three manors – Wargrave, Farnham, and Wycombe, those rates threshing remained fixed at a slightly higher rate of 7.50d, from the 1380s. Because some manors, in which the threshing rates had been below the Winchester average, enjoyed a 'catch-up' to match the prevailing rate on the other manors, by and from

⁶³ Farmer, 'Price and Wages', Table 5.8, p. 471.

⁶⁴ See Table 5, and Clark, 'Long March of History', Table A2, pp. 130-35.

the 1380s, the overall Winchester mean rate rose by 43.74 percent: from 1340-48 to 1390-99.⁶⁵

The overall picture of late-fourteenth century agrarian wages is, nevertheless, still clear. Despite wage-stickiness on the Winchester manors – likely to be totally obscured in calculating overall ‘national’ means – and despite the modest fall in the other agrarian wage data just cited, the costs of employing labour on English demesnes had generally risen to a very high level by the end of the century, while the overall consumer price index had fallen – again in terms of decennial means – by 21.8 percent: from the peak of 1361-69 (137.22) to 1391-1400 (107.30). As noted earlier, Tables 1 and 2 demonstrate even sharper declines in the price for wools, other livestock products, and grains, generally from the 1360s to the 1390s; and, furthermore, those agrarian commodity prices generally fell even further during the first quarter of the fifteenth century, while some agrarian wages that had fallen slightly in the late fourteenth century recovered and achieved some small net gains in this period.⁶⁶ Obviously that striking and growing difference between commodity prices and wages constituted one of the key elements – though not the only – in the price-cost squeeze that plagued, so to speak, many English manorial lords who may have hoped to continue operating their demesnes as profitable commercial enterprises in the late fourteenth, early fifteenth centuries.

The debate about real wages and labour productivity

In much of the current literature, the combined issue of prices and wages following the Black Death and then, more especially, during the later fourteenth and fifteenth centuries – during the so-called ‘golden age’ of the labourer – are debated in terms of the behaviour of *real* wages. The evidence for real-wage changes are presented in Table 3 and 4: in two fully complementary methods: (1) by the standard formula $RWI = NWI/CPI$; i.e., the Real Wage Index = the Nominal Wage Index divided by the Consumer Price Index; and (2) the number of ‘baskets of consumable’ (those used to compute the CPI)

⁶⁵ Beveridge, ‘Winchester Manors’, Table 1, p. 38. For Overton, see also n. 41.

⁶⁶ See the sources for the publications of Clark and Farmer in n. 53, above.

that a master building craftsmen and his labourer each could have purchased in the course of a year, with 210 days employment. The index numbers for this measure, the quantity of baskets purchased, are exactly the same as those calculated for the standard Real Wage formula (and thus are not repeated in these two tables).⁶⁷

As I have contended elsewhere, and as these two tables clearly indicate, real wages for English urban building craftsmen fell, not rose, in the immediate aftermath of the Black Death, simply because the rate of inflation outpaced the rise in nominal wages. The fully sustained, long term rise in real wages, ushering in the so-called ‘golden age’ of the English labourer, did not until the 1370s. Thereafter, that very significant rise is largely, though by means fully, explained by the aforesaid monetary deflation: so that prices, and thus the cost of living fell, while nominal wages either remained stable, or in some cases of agricultural piece-rates continued to rise. But as just noted, some also fell in the 1390s, while others (Winchester estates) demonstrated the same ‘wage-stickiness’ as found with urban craftsmen. As I had also contended, this very same changes and the same patterns in real wages can be found, for the same reasons, in Flanders – except, as noted earlier, that the inflationary impact of coinage debasements in the 1380s postponed the sustained rise in real wages until the 1390s. Similarly, I had found that in the southern Low Countries institutional wage-stickiness was far more prevalent with urban industrial wages than with rural and especially agrarian wages.⁶⁸

But in this study, focusing on the deflationary period from ca. 1370 to ca. 1420, the behaviour of nominal wages is itself of considerable importance for three reasons. First, of course, is indeed a central issue of importance for the subsequent fate of manorial demesne economies: that wages did not

⁶⁷ See: Munro, ‘Wage Stickiness’, pp. 185-297; Munro, ‘Builders’ Wages’, pp. 1013-76; and Munro, ‘Black Death’, pp. 335-64. These three publications explain the choice of 210 days as the average number of days of expected employment in this era; and also why the quinquennial means for real wages, by both measures, must be calculated as harmonic rather than as arithmetic means.

⁶⁸ Munro, ‘Urban Wage Structures’, pp. 65-78; ‘Wage Stickiness’, pp. 185-297; Munro, ‘Builders’ Wages’, pp. 1013-76.

fall, and had indeed risen substantially by ca. 1411-15, while the prices for grains, wool, and other livestock products had by then fallen very substantially. The second and also fundamentally important issue is why these wages did not fall during the deflation that ensued during the ‘bullion famine’, from the 1370s to ca. 1420, when they had fallen during the previous and equally deflationary era, from the mid 1330s to the eve of the Black Death – certainly for building craftsmen (Tables 13-1 4). That wages had not done so, had not followed the historic pattern, was a significant and surprising economic phenomenon to which Lord Beveridge, Phelps Brown and Hopkins, and Bridbury had all called attention.⁶⁹

The third reason is that such nominal wage stability, during this era of monetary deflation, allows us to understand better the now demonstrated rise, very substantial rise, in real wages during this very same era – up to indeed, about the 1460s. Phelps Brown and Hopkins called this phenomenon of nominal wage stability the ‘ratchet effect’ – i.e., a geared device that permits motion in only one direction (forward) – which, they observe, continued for English money wages for more than six centuries, and was reversed only after 1920.⁷⁰ But they never really explained this phenomenon. Today, economists,

⁶⁹ See in particular William Beveridge, ‘Westminster Wages in the Manorial Era,’ *Economic History Review*, 2nd ser., 8 (1955-56), 18 - 35; and especially Beveridge, ‘Winchester Manors’, p. 31, in which he states: ‘From 1290 to 1379 the money wages and the price of wheat move decade by decade always in the same direction, rising and falling together. Thereafter, they part company completely....’ He also notes, earlier in this paragraph, ‘the downward trend [of money wages] in the twenty or thirty years before the Black Death. Though less rapid than the preceding rise this movement is even more widespread.... Moreover, the decline appears in nearly all the series for individual manors taken separately’. That decline, however, is not shown for threshing and winnowing rates given in his Table 1, p. 38; nor can it be found in Clark’s ‘farm wage’ data (Clark, ‘Long March’, pp. 132-33: with five year means in this study’s Table 15). But that pre-Plague decline in money piece-rate wages for both mowing and reaping, if not for threshing, is clearly evident in Farmer, ‘Prices and Wages’, Table 5.8, p. 471. Rates for reaping per acre fall from 6.65d mean in 1310-20 to 5.87d in 1340-47; and those for mowing fall from 5.46d to 4.95d per acre, over the same period. See also Phelps Brown and Hopkins, ‘Seven Centuries of Building Wages,’ pp. 195-206; and Bridbury, ‘Black Death’, pp. 557-92, esp. p. 582 (with the same quote from Beveridge), pp. 584-85. I myself have found ample evidence of this pre-Plague decline in money wages, in the Winchester manorial accounts (see n. 40 above).

⁷⁰ Phelps Brown & Hopkins, ‘Building Wages’, p. 12: not until 1944 was the 1920 wage rate regained.

following Keynes, employ the term used earlier in this study: ‘downward wage stickiness’ – still a much disputed topic. In earlier publications, I sought to explain – both in England and the Low Countries – from the later fourteenth century – and thus I need not repeat the arguments here.⁷¹

There is course, another explanation, for the combined behaviour of nominal and real wages: increased labour productivity. Indeed, the alternative economic formula for determining real wages is: $RW = MRP_L$, that is, the Real Wage is a function of the Marginal Revenue Product of Labour. Most economic historians still neglect the ‘revenue’ part of the formula: i.e., the market value of the last unit of the product that the last unit of labour adds to the production process. Thus, if labour productivity rose in, say, arable farming, but the market value of the crops so produced and sold fell, then the expected increase in the farm labourer’s real wage would have been indeterminate (or even negative). Nevertheless, most economic historians, still subscribe fully to the Ricardian argument advanced earlier in this study: namely, that the post-Plague fall in population necessarily led to a sharp rise in labour productivity. Indeed, Gregory Clark’s recent article has two dramatic, telling graphs: one showing a tripling of the labour productivity in English agriculture, immediately from the Black Death, reaching its peak in the mid fifteenth century; and the other corresponding graphs shows a comparable tripling in agricultural real wages over this same period, from the Black Death.⁷²

⁷¹ Munro, ‘Wage Stickiness’, pp. 185-297; Munro, ‘Builders’ Wages’, pp. 1013-76; Munro, ‘Black Death’, pp. 335-64. See John Maynard Keynes, *The General Theory of Employment, Interest and Money* (London, 1936), p. 257. He ought to have cited Adam Smith, who (in 1776) stated that: ‘The wages of labour do not in Great Britain fluctuate with the price of provisions, [which] vary everywhere from year to year, frequently from month to month. But in many places the price of labour remains uniformly the same sometimes for half a century’. In: Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations* (1776), ed. with introduction by Edwin Cannan (New York: Modern Library, 1937), p. 74.

⁷² Clark, ‘Long March of History’, Figure 2, p. 104; and Figure 3, p. 106; and Figure 4, p. 109. See also Table 9, p. 120, on English population estimates, with important implications for productivity : with a peak of 6.06 million in 1310 and a nadir of 2.30 million in 1450. I prefer an estimate of 4.25 to 4.50 million in 1300: given in 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*, Institute of British Geographers, Historical Geography Research Series no. 30 (London, 1993); Pamela Nightingale, ‘The Growth of London in the Medieval English Economy’, in Richard Britnell and John Hatcher, eds., *Progress and Problems in Medieval England* (Cambridge, 1996), pp. 89-106.

One very major problem with this productivity thesis – one that Clark neglects to note – is a series of recent studies indicating that, on the contrary, labour productivity in arable agriculture very likely fell, not rose, from the Black Death to the late fourteenth century, though these studies do not really explain this paradox.⁷³ One possible reason may lie earlier studies of Bruce Campbell, who had utilized the Boserup thesis to contend, convincingly, that population growth, growing pressures on relatively inelastic supplies of arable land, provided the greater spur to innovation and productivity increases;⁷⁴ and his publications (one with Mark Overton) also demonstrate declines in agricultural productivity (perhaps in terms of total factor productivity and thus also in yields in the era following the Black Death. In Norfolk, the weighted annual cereal yields fell from a mean of 11.9 bushels per acre in 1325-49 to one of 8.0 bu/acre in 1400-24.⁷⁵ Possibly an era of finally cheaper foodstuffs had obviated

⁷³ Ambrose Raftis, 'Peasants and the Collapse of the Manorial Economy on Some Ramsey Abbey Estates', and David Farmer, 'The Famuli in the Later Middle Ages', both in Richard Britnell and John Hatcher, eds., *Progress and Problems in Medieval England: Essays in Honour of Edward Miller* (Cambridge and New York: Cambridge University Press, 1996), pp. 191-206, 207-36, respectively. See also: David Stone, 'Medieval Farm Management and Technological Mentalities: Hinderclay Before the Black Death', *The Economic History Review*, 2nd ser., 54:4 (November 2001), 612-38; David Stone, 'The Productivity of Hired and Customary Labour: Evidence from Wisbech Barton in the Fourteenth Century,' *The Economic History Review*, 2nd ser., 50:4 (November 1997), 640-56; David Stone, 'The Productivity and Management of Sheep in Late Medieval England', *Agricultural History Review*, 51:1 (2003), 1-22; David Stone, *Decision-Making in Medieval Agriculture* (Oxford and New York: Oxford University Press, 2005).

⁷⁴ Esther Boserup, *Population and Technological Change: A Study of Long-Term Trends* (Chicago, 1981); Bruce Campbell, 'Agricultural Progress in Medieval England: Some Evidence from Eastern Norfolk', *Economic History Review*, 2nd ser., 36:1 (Feb. 1983), 26-47; B.M. Campbell, 'Arable Productivity in Medieval England: Some Evidence from Norfolk', *Journal of Economic History*, 43 (June 1983), 379-404; and Bruce M. S. Campbell, 'Progressiveness and Backwardness in Thirteenth and Early Fourteenth-Century English Agriculture: the Verdict of Recent Research', in Jean Marie Duvosquel and Erik Thoen, eds., *Peasants & Townsmen in Medieval Europe: Studia in Honorem Adriaan Verhulst*, Belgisch Centrum voor Landelijk Geschiedenis nr. 114/Centre belge d'histoire rurale no. 114 (Ghent, 1995), pp. 541-559.

⁷⁵ Bruce M. S. Campbell and Mark Overton, 'A New Perspective on Medieval and Early Modern Agriculture: Six Centuries of Norfolk Farming, c.1250 - c.1850', *Past & Present*, no. 141 (November 1993), 38 - 105; esp. Table 5, p. 70; Bruce M. S. Campbell, *English Seigniorial Agriculture, 1250 - 1450*, Cambridge Studies in Historical Geography no. 31 (Cambridge: Cambridge University Press, 2000), Table 7.13, p. 374; Bruce Campbell, 'Matching Supply to Demand: Crop Production and Disposal by English Demesnes in the Century of the Black Death', *Journal of Economic History*, 57:4 (December 1997), Tables 4-5, pp. 837, 840. Total factor productivity measures marginal increases in outputs in terms of the combined contributions of capital, land, and labour, on the assumption that changes in all such factors work together.

the necessity to engage in more intensive and more efficient forms of arable agriculture.

Productivity and other economic changes in English pastoral (livestock) agriculture

The studies just cited on productivity in post-Plague English agriculture also indicate, however, a corresponding rise in labour productivity in pastoral or livestock agriculture: i.e., that fewer persons were required to look after a given herd of sheep or cattle. Not surprisingly, Bruce Campbell's abundant data (for England, not just Norfolk) show an increase in mean livestock units, per 100 grain acres: from 64.80 in 1300-49 to 89.30 in 1400-49 (in index numbers: from 100.00 to 192.50).⁷⁶ They also demonstrate a relative shift in incomes derived from arable and livestock sectors on English agriculture. Thus, in the period 1288-1315, in the counties servicing the London market, manorial demesne revenues from arable constituted 64.40 percent of the total and livestock the remaining 35.60 percent of total incomes. For the late fourteenth century, from 1375-1400, the proportions were almost reversed: now 52.20 percent of incomes came from livestock and 47.80 percent from arable agriculture.⁷⁷ As Table 2 demonstrates, the *relative* commodity prices in the final quarter of the fourteenth century clearly moved away from grains in favour of livestock products. Note also, from Table 2, that the movement in the ratio of livestock prices (beef, mutton, pork) to grain prices was more favourable to these livestock products than were the changes in the ratio of livestock price to the overall Consumer Price Index.⁷⁸

The economics of wool production and of wool exports in the fourteenth century

The changes in the ratio of wool prices to grain prices was also much more favourable to the former than to the latter; but observe all, from Table 2, that changes in the quinquennial mean ratio of non-wool livestock prices to grains became relatively more favourable than those for wools alone from

⁷⁶ Campbell, *English Seigniorial Agriculture*, Table 4.07, pp. 174-75.

⁷⁷ *Ibid.*, Table 4.10, pp. 184-85.

⁷⁸ In these commodity price ratios the price-index for the commodity being considered is the numerator, and that for the product being compared is the denominator. If the ratio moves above 100, the change favours the first product (numerator), if the ratio falls below 100, the change favours the other product (denominator).

the 1380s. Such evidence obviously has significant implications for those English manorial demesnes, even those practising traditional ‘sheep-corn’ husbandry that had earlier profited from export-oriented wool production. It is worth remembering that in the late fourteenth, raw wool and woollens – but especially the former – accounted for at least 90-95 percent of total English export revenues.⁷⁹

But what actually happened to demesne agriculture focused on wool production contradicts the expectations that might be derived from the foregoing data. The significance of the price data lies not so much in the steep fall in wool prices – a fall of 37.26 percent for better quality wools – from 1371-75 to 1391-95, because non-wool livestock product prices also fell over this same period, though by a slightly lesser amount, 34.92 percent. For manorial wool producers, the decline in the quantity sold and exported from the 1370s became a far more important issue than the fall in wool prices. Once more, the Black Death itself had not provided any negative turning total for wool producers, as is clear from Table 7. For English wool exports had surprisingly risen in the following fifteen years: from a low of 18,075.6 sacks (364 lb = 165.11 kg per sack) in 1341-45 to a peak of 32,666.4 sacks in 1356-60. That total export came close to the earlier peak of the earlier post-Famine (and post-murrain) quinquennial-mean peak of 33,645.0 sacks in 1331-35. But, from the late 1370s, then mean wool-export fell precipitously: by 60.50 percent, from the peak of 1356-60 to the trough of 1411-15 (12,633.2 sacks).

Changes in international trade and in the northern wool-based textile industries

The reasons for these striking rise and then collapse of the wool-export trade may found in a combination of major changes, foreign and domestic, that had in fact begun well before the Black Death. The first was a profound transformation in international trade that had commenced with widespread almost incessant warfare throughout the entire Mediterranean basin and western Europe, and continued

⁷⁹ In the early 1640s, wool and wool-based textiles still accounted for 92.3 percent of total export revenues. See C. G. A. Clay, *Economic Expansion and Social Change: England, 1500 - 1700*, Vol. II: *Industry, Trade, and Government* (Cambridge and New York, 1984), Table XIII, p. 144. In the appendix, Appendix Tables 5, 6, and 8 demonstrate the very great importance that wool production or livestock production (when products are not differentiated) had in so many pre-Plague manorial demesne economies.

into the Hundred Years' War (1337 - 1453). As I have sought to demonstrate in other publication, not just these wars but more particularly their consequences in increased military costs, taxation, trade embargoes, piracy, disruptions of traditional trade routes, etc. raised both the transportation and overall transactions costs in both regional and international trade. Those most afflicted were textile producers in north-west whose exports were then oriented largely to Mediterranean markets. They soon found that were no longer able to profit from exporting their cheaper-line textiles, those lacking any quality distinction, across such long and danger-laden routes to these markets.⁸⁰

Consequently only those northern textile producers who managed to specialize in producing very high-priced luxury woollens managed to survive. They did so by transforming themselves from 'price-takers' into 'price-makers': i.e. by engaging in 'monopolistic competition' emphasizing the singular and distinctively superior qualities of their woollens (over all rivals). At the same time, of course, so high priced were these luxury woollens that the combination of transportation and transaction costs constituted a far smaller portion of their total production and marketing costs. The most successful in achieving this transformation, and in doing so from the 1320s and 1330s, were those in the towns of Flanders and Brabant. The English cloth industry underwent a very similar transformation, from the 1350s, but far less successfully than the rivals in the Low Countries, at least before the mid fifteenth century.⁸¹

⁸⁰ John Munro, 'Industrial Transformations in the North-West European Textile Trades, c. 1290 - c. 1340: Economic Progress or Economic Crisis?' in Bruce M. S. Campbell, ed., *Before the Black Death: Studies in the 'Crisis' of the Early Fourteenth Century* (Manchester and New York: Manchester University Press, 1991), pp. 110 - 48; reprinted in John Munro, *Textiles, Towns, and Trade: Essays in the Economic History of Late-Medieval England and the Low Countries*, Variorum Collected Studies series CS 442 (Aldershot, Hampshire; and Brookfield, Vermont: Ashgate Publishing Ltd., 1994); John Munro, 'The Origins of the English 'New Draperies': The Resurrection of an Old Flemish Industry, 1270 - 1570', in Negley B. Harte, ed., *The New Draperies in the Low Countries and England, 1300 - 1800*, Pasold Studies in Textile History no. 10 (Oxford and New York: Oxford University Press, 1997), pp. 35-127.

⁸¹ See: John Munro, 'The "Industrial Crisis" of the English Textile Towns, 1290 - 1330', *Thirteenth-Century England: VII*, ed. Michael Prestwich, Richard Britnell, and Robin Frame (Woodbridge, UK: Boydell Academic Press, 1999), pp. 103-41; John Munro, 'The Symbiosis of Towns and Textiles: Urban Institutions and the Changing Fortunes of Cloth Manufacturing in the Low Countries and England, 1270 - 1570', *The Journal of Early Modern History: Contacts, Comparisons, Contrasts*, 3:1 (February 1999), 1-74; John Munro, 'Medieval Woollens: The Western European Woollen Industries and their Struggles for International

In this late-medieval period, the *sine qua non* for luxury woollen cloth production was the exclusive use of higher grade English wools, which would encounter no serious rivals before the improvement of Spanish *merino* wools in the sixteenth century. The very best quality wools were those from the Welsh Marches (Herefordshire and Shropshire), the Cotswolds (Gloucestershire, Worcestershire, Wiltshire, Oxfordshire, and Berkshire), Lincolnshire (Kesteven and Lindsay) and some other Midlands wools.⁸² That industrial reorientation in the Low Countries towards luxury woollens may explain why English wool exports experienced that surprising recovery and short-lived expansion just after the Black Death. As I and others have also suggested, in documenting changes in consumption patterns, a post-Plague hedonistic spending spree – of inherited cash balances – may also have been a factor, as well as a factor explaining the post-Plague inflations across western Europe.⁸³

The wool export duties of Edward III and the Calais Staple

These economic transformations also help explain why and how King Edward III financed his forthcoming war with France – inaugurating the Hundred Years' War (1337-1453). In 1336, Edward III secured from the Nottingham Assembly of Merchants an agreement to impose an exorbitant special levy

Markets, c.1000 - 1500', in David Jenkins, ed., *The Cambridge History of Western Textiles*, 2 vols. (Cambridge and New York: Cambridge University Press, 2003), Vol. I, pp. 228-324.

⁸² John Munro, 'Medieval Woollens: Textiles, Textile Technology, and Industrial Organisation, c. 800 - 1500', in David Jenkins, ed., *The Cambridge History of Western Textiles*, 2 vols. (Cambridge and New York: Cambridge University Press, 2003), Vol. I, pp. 287-92; Munro, 'Wool-Price Schedules', pp. 118-69.

⁸³ See John Munro 'The "New Institutional Economics" and the Changing Fortunes of Fairs in Medieval and Early Modern Europe: the Textile Trades, Warfare, and Transaction Costs', *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, 88:1 (2001), 1 - 47; Munro, 'Patterns of Trade, Money, and Credit', pp. 147-95; Munro, 'Industrial Transformations', pp. 110-48; Munro, 'Origins of the New Draperies', pp. 35-127. See also Robert Lopez and Harry Miskimin, 'The Economic Depression of the Renaissance', *Economic History Review*, 2nd ser., 14 (1962), 408-26; Robert Lopez, Harry Miskimin, and Abraham Udovitch, 'England to Egypt, 1350-1400: Long-Term Trends and Long-Distance Trade', in M.A. Cook, ed., *Studies in the Economic History of the Middle East* (London, 1970), pp. 93-128; Miskimin, *Early Renaissance Europe*, chapters 1-3; Herman Van der Wee and Theo Peeters, 'Un modèle dynamique de croissance interseculaire du commerce mondiale, XIIe-XVIIIe siècles', *Annales: E.S.C.*, 15 (1970), 100-28; John Day, 'Crises and Trends in the Late Middle Ages', in John Day, *The Medieval Market Economy* (Oxford: Blackwell, 1987), pp. 185-224. See also n. 83, below.

or ‘subsidy’ of 20s sterling on each sack of wool exported. That was in addition to the export taxes that his grandfather Edward I had imposed much earlier: in 1275, the Old Custom of 6s 8d per sack, on denizen merchants only; and in 1303 (by the *Carta Mercantoria*), the New Custom of 10s 0d per sack, for aliens. That same Nottingham assembly also fixed the minimum prices of the better wools, county by county. Shortly after, in March 1338, the crown with Parliament’s consent increased that ‘subsidy’ to 33s 4d per sack (= 40s 0d in total for denizens, 43s 4d for aliens). The subsequent increases in the combined wool customs and subsidy, as approved by Parliament, are presented, in quinquennial means, in Table 1 (on wool prices).⁸⁴ By the 1370s, the total taxes had risen to 50s 0d a sack for denizens and 53s 4d for aliens; and thus, by the early 1370s, the mean prices of better quality wools, with the taxes added, had risen to a mean of £10.395 per sack.

Initially, the tax ‘incidence’ or burden was born more by the domestic wool growers than by the foreign customers. As Table 10 demonstrates, the ratio of wool prices to grain prices and to the CPI itself moved against wool prices from the mid 1340s until the early 1360s. The crown faced a growing opposition to the wool export taxes from landowners in both houses of Parliament, who were not mollified by a temporary cut in the export subsidy (to 20s per sack) in 1362. The next year, in March 1363, Edward III sought to resolve this problem by establishing a royal staple for all wool exports to northern Europe, at recently the conquered French port of Calais (1347), just across the Channel in

⁸⁴ See Great Britain, H. M. Public Record Office, ed., *Calendar of the Fine Rolls Preserved in the Public Record Office*, 22 vols. (London, 1911-1962): *Edward II - Henry VII*, Vols. IV (1327-1337) to XXI (1471-1485); Great Britain, Parliament, *Rotuli parliamentorum ut et petitiones et placita in Parlamento*, 6 vols. (London, 1767-77), Vols. II - V; F.R. Barnes, ‘The Taxation of Wool, 1327-1348’, in G. Unwin, ed., *Finance and Trade Under Edward III* (London, 1918), pp. 137-77; N.S.B. Gras, *The Early English Customs System: a documentary study of the institutional and economical history of the customs from the thirteenth to the sixteenth century* (Cambridge, Mass., 1918), pp. 75-80; E.M. Carus Wilson and Olive Coleman, eds., *England’s Export Trade, 1275-1547* (Oxford, 1963), pp. 194-96; Eileen Power, *The Wool Trade in English Medieval History: Being the Ford Lectures* (London and Oxford: Oxford University Press, 1941; reissued 1955, and Westport, Conn: Greenwood Press, 1987), pp. 63-85; W.M. Ormrod, ‘The Crown and the English Economy, 1290-1348’, in Bruce M.S. Campbell, ed., *Before the Black Death: Studies in the ‘Crisis’ of the Early Fourteenth Century* (Manchester, 1991), pp. 149-83; Lloyd, *English Wool Trade*, pp. 144-224 (for this and the following).

northern France. The new Company of the Staple, vested in the hands of 24 merchant-aldermen, with full powers to supervise and control all wool sales at Calais, was obviously designed to pass the export tax incidence more fully on to the foreign buyers. It immediately reinstated the Nottingham policy of fixing minimum and uniform wool prices, county by county, to thwart internal competition. In October 1363, Parliament restored the wool subsidy to 40s per sack, and also imposed a new Calais import duty of 3s 4d per sack (later reduced to 1s 7d). In 1369, it increased the subsidy, to 43s 4d per sack, for a total duty on native exporters of 50s 0d a sack (51s 7d with the Calais duty).⁸⁵

Nevertheless, not until the early 1390s, did the Staplers fully realize their goal of becoming an effective cartel; for in the interim, crown and Parliament took periodically undermined the Staple by, in effect, selling various exemptions: allowing Italian and Spanish merchants to bypass the Staple to export wools directly by sea from Southampton to the Mediterranean (1378); allowing others to ship wools directly to Middelburg and Dordrecht; by selling special export licences. Worse Parliament periodically removed the Staple from Calais: in 1369-76, in 1382-88, and 1390-92. But in 1392, Parliament restored the Staple permanently (i.e, until its loss to France in 1558), and its full powers, agreeing to grant far fewer export licences. By this time, the heavier alien duties had virtually eliminated the former major role of Italian merchants in England's wool export trade, as indicated in Tables 1 and 7 (13.85 percent of the total in 1396-1400; 8.43 percent 1401-05).⁸⁶

The role of monetary deflation in taxation of wool exports

By the 1390s, deflation – with the already noted 37.3 percent decline in mean wool-export prices, from the mean of 1371-75, had acted to exacerbate the wool export tax burden. For the customs and subsidies were *fixed* and thus not *ad valorem* duties, so that the tax burden rose as prices fell. As Table

⁸⁵ See See Lloyd, *English Wool Trade*, pp. 193-256; Power, *Wool Trade*, pp. 81-85; Munro, 'Medieval Woollens: Struggle for Markets', pp. 278-85; and other sources cited in nn. 76-80.

⁸⁶ See Lloyd, *English Wool Trade*, pp. 193-256; Power, *Wool Trade*, pp. 86-103; Munro, 'Medieval Woollens: Struggle for Markets', pp. 278-85.

1 demonstrates, the wool-export taxes had risen, in these terms, to a level of 50 percent of the wholesale export price in England. Unfortunately, for both wool exporters and wool buyers in the Low Countries, these tax-burdened English wools accounted for a very high proportion of pre-finishing production costs in the latter's luxury woollen draperies of the southern Low Countries: from 65 to 75 percent.⁸⁷ Not until the 1430s would an alternative source of fine quality wools arrive in the Low Countries, in the form of Spanish *merino* wools. The major urban draperies refused, however, to consider using them, fearing the loss of customers by damaging their reputation for the ultra-luxury qualities of their finer woollens. Only their upstart small-town rivals, known as the *nouvelles draperies*, who were then marketing cheaper imitations of traditional luxury woollens, dared to experiment with *merino* wools, while usually mixing them with the finer English wools.⁸⁸

It would thus appear that the Flemish (and also the Brabantine and now Dutch) urban draperies had an 'inelastic' demand for fine quality English wools. But, as any economist will note, a producer's demand for industrial inputs is fundamentally derived from the market demand for the final product. The demand for luxury goods is almost by definition elastic, all the more so if there were effective available substitutes. Thus, even if one argues that luxury apparel was a social 'necessity' for much of the European nobility and even for the upper bourgeoisie, they were now finding such substitutes in a wide

⁸⁷ For the data sources, see John Munro, 'Industrial Protectionism in Medieval Flanders: Urban or National?' in Harry Miskimin, David Herlihy, and A. L. Udovitch, eds., *The Medieval City* (New Haven and London: Yale University Press, 1977), Table 13.2, p. 256; and John Munro, 'The Medieval Scarlet and the Economics of Sartorial Splendour', in Negley B. Harte and Kenneth G. Ponting, eds., *Cloth and Clothing in Medieval Europe: Essays in Memory of Professor E. M. Carus-Wilson*, Pasold Studies in Textile History No. 2 (London: The Pasold Research Fund and Heinemann Educational Books, 1983), pp. 13-70, Table 3.12, p. 52.

⁸⁸ John Munro, 'Spanish *Merino* Wools and the *Nouvelles Draperies*: an Industrial Transformation in the Late-Medieval Low Countries', *Economic History Review*, 2nd ser., 58:3 (August 2005), 431-84; Munro, 'Medieval Woollens: Textiles, Textile Technology,' pp. 287-92; Munro, 'Medieval Woollens: Struggle for Markets', pp. 288-91. By the very late fourteenth, early fifteenth centuries, a number of Italian woollen cloth producers had also begun using Spanish *merino* wools. See John Munro, 'I panni di lana': in Luca Ramin (editor in chief), *Il Rinascimento italiano et l'Europa*, vol. IV: *Commercio e cultura mercantile*, ed. by Franco Franceschi, Richard Goldthwaite, and Reinhold Mueller (Fondazione Cassamarca: Angelo Colla Editore: Treviso, 2007), pp. 105-41.

variety of Italian-made silk fabrics, as well as imported Byzantine and Asian silks.⁸⁹

The dire fate of the luxury woollen cloth industries in the late fourteenth-century Low Countries

The combined results of the wool export taxes, made all the worse by the impact of monetary deflation, for both English wool exports and luxury woollen cloth production in the southern Low Countries can be seen – in part – in Tables 7 and 8. Focusing just on denizen wool exports – those destined for the Calais Staple – we find a 35-percent decline in mean exports, from the mean of 20,99.95 sacks in 1361-65 (when the Calais Staple was established) to a mean of 13,593.2 sacks in 1391-95. Thereafter they maintained that level more or less, until the late 1420s when even worse English fiscal and monetary policies, in the form of the Calais Staple Bullion and Partition Ordinances, spelled the final doom of both the English wool trade and the luxury urban draperies in the Low Countries – but that story, discussed at length elsewhere is beyond the scope of this current study.⁹⁰ The Low Countries' textile

⁸⁹ Certainly the most luxurious and most costly of all textiles worn in later-medieval and early-modern Europe were those woven from silk. For the late-medieval silk industry, see John Munro, 'Silk', in Joseph R. Strayer, et al., eds, *Dictionary of the Middle Ages*, 13 vols. (New York: Charles Scribner's Sons/MacMillan, 1982-88), Vol. 11: *Scandinavian Languages to Textiles, Islamic* (New York, 1988), pp. 293-96; Giovanni Federico, 'Silk Industry', in Joel Mokyr, ed., *The Oxford Encyclopedia of Economic History*, 5 vols. (Oxford and New York: Oxford University Press, 2003), vol. 4, pp. 483-91; Luca Mola, *La seta in Italia dal Medioevo al Seicento: dal baco al drappo* (Marsilio, 2000); Luca Mola, *The Silk Industry of Renaissance Venice* (Johns Hopkins University Press, 2000); Anna Muthesius, 'Silk in the Medieval World', in David Jenkins, ed., *The Cambridge History of Western Textiles*, 2 vols. (Cambridge: University Press, 2003), vol. I, pp. 325-54; Paola Lanaro, ed., *At the Centre of the Old World: Trade and Manufacturing in Venice and the Venetian Mainland, 1400 - 1800*, Publications of the Centre for Reformation and Renaissance Studies: Essays and Studies no. 9 (CRRSS: Victoria University in the University of Toronto, 2006); Simonetta Caviacocchi, ed., *La seta in Europa sec. XIII-XX : atti della 'Ventiquattresima Settimana di studi'*, 4-9 maggio 1992, Istituto internazionale di storia economica F. Datini (Le Monnier, 1993). For the very high prices of some silk fabrics in fifteenth-century England, see Munro, 'Medieval Scarlet', Table 3.15, p. 69; and Munro, 'Industrial Protectionism in Flanders', Table 13.3, Part I, pp. 257-60.

⁹⁰ John H. Munro, *Wool, Cloth and Gold: The Struggle for Bullion in Anglo-Burgundian Trade, 1340-1478*, Centre d'Histoire Économique et Sociale (Brussels: Editions de l'Université de Bruxelles; and Toronto: University of Toronto Press, 1973); John Munro, 'An Economic Aspect of the Collapse of the Anglo-Burgundian Alliance, 1428-1442', *English Historical Review*, 85: 335 (April 1970), 225-44; reprinted in John Munro, *Bullion Flows and Monetary Policies in England and the Low Countries, 1350 - 1500*, Variorum Collected Studies series CS 355 (Aldershot, Hampshire; and Brookfield, Vermont: Ashgate Publishing Ltd., 1992); John Munro, 'Anglo-Flemish Competition in the International Cloth Trade, 1340 - 1520', *Centre européen d'études bourguignonnes*, 35 (1995), 37-60 [*Rencontres d'Oxford (septembre 1994): L'Angleterre et les pays bas bourguignonnes: relations et comparaisons, XVe - XVIe siècle*, ed. Jean- Marie

data provided in Table 8, for Ghent, Mechelen, and Leuven in the fourteenth century and for Ypres as well in the first half fifteenth century, tell a very dismal tale. These are not, however, production indices as such, but the revenues derived from the annual auctions of various excise-tax farms for these draperies, for both manufacture and sales. Since these tax farms were usually competitive auctions, we may assume that they reflect dire economic realities, though probably exaggerating them as well. Again those for Ghent and Leuven, reflect just a slow decline to about the 1360s, and then a very precipitous decline, to the early fifteenth century (with an unfortunate lacuna for Ghent in the 1390s). That sharp decline may indicate that even from its inception, the Calais Staple had a significant impact in shifting the wool-tax burden from English growers to the Flemish and Brabantine woollen draperies. From the mean of 1356-60 to that of 1401-05, the Ghent A series data fall by 90.46 percent; the B series data fall by 86.32 percent; the Leuven data, from the peak of 1366-70, fall by 83.19 percent; the more complicated Mechelen data, from the earlier mean of 1351-55 to 1401-05, fall by 61.82 percent.

Obviously, the explanations for this decline and fall of the Low Countries urban draperies are very complex, involving a myriad of factors, domestic and foreign.⁹¹ Some of the latter are considered in the ongoing debate about the so-called ‘Great Depression’ of the later Middle Ages, including the continued impact of warfare on especially taxation, on disruptions of both production and international trade, on changes in distributions of wealth and incomes.⁹² More highly skewed distributions of wealth

Cauchies.]; Munro, ‘The Symbiosis of Towns and Textiles’, pp. 1-74; John Munro, ‘Medieval Woollens’, pp. 241-62, 286-95; Munro, ‘Spanish *Merino* Wools’, pp. 431-84.

⁹¹ See the sources cited in nn. 76-77, and especially n. 86 above.

⁹² See the sources cited above, in nn. 76-79, 85-86 above; and also, for luxury consumption, John Munro, ‘Economic Depression and the Arts in the Fifteenth-Century Low Countries’, *Renaissance and Reformation*, 19 (1983), 235-50; John Munro, ‘The Anti-Red Shift – to the Dark Side: Colour Changes in Flemish Luxury Woollens, 1300 - 1550’, *Medieval Clothing and Textiles*, 3 (2007), 55-95; John Munro, ‘Three Centuries of Luxury Textile Consumption in the Low Countries and England, 1330 - 1570: Trends and Comparisons of Real Values of Woollen Broadcloths (Then and Now)’, in Kathrine Vestergård and Marie Louise Nosch, eds., *The Medieval Broadcloth: Changing Trends in Fashions, Manufacturing, and Consumption*, Ancient Textile Series, vol. 5 (Oxford: Oxbow Books, 2009), pp. 1-73; Susan Mosher Stuard, *Gilding the Market: Luxury and Fashion in Fourteenth-Century Italy* (Philadelphia: University of

and income may, however, have continued to benefit their luxury production. Clearly, however, such production had to be focused on the far smaller markets of the very wealthy strata of European society. Undoubtedly recurrent plagues and continuing depopulation also explain some of this decline; but nobody will seriously suggest that Europe's population fell that much from ca. 1360 to ca. 1410: again, not one commensurate either with the by 61-percent fall in wool exports over this same period.

The rise and expansion of the English cloth export trade

A far more obvious factor that helps to explain the decline of both the English wool trade and luxury cloth production in the Low Countries was the rise of England's cloth-export trade, which had had only a very minimal importance before the Black Death, as may be seen in Table 8. For the major if quite unintended beneficiary of English fiscal policies was the cloth export trade. Thus, domestic English clothiers were able to purchase the same fine English wools – the same as those sold in the Low Countries – tax free, while cloth exporters paid only minimal duties. Denizens had in fact paid no duties at all, until the imposition of the Cloth Custom of 1347, which imposed a very minimal export tax of 1s 2d per standard broadcloth of assize. Much earlier, from the *Carta Mercatoria* of 1303, German Hanseatic merchants had been subjected to a cloth-export duty of just 1s 0d per standard broadcloth; and they refused to pay the higher duty in the 1347 Cloth Custom. Other alien merchants were forced to pay both a higher duty of 2s 4d (33d) per broadcloth, and subsequently also, if periodically, an *ad valorem* poundage tax of five per cent.⁹³

Not surprisingly, English and Hanse merchants together soon achieved an overwhelming

Pennsylvania Press, 2006).

⁹³ Gras, *The Early English Customs System*, pp. 66-85; Carus-Wilson and Coleman, *England's Export Trade, 1275-1547*, pp. 13-18, 194-98; Munro, 'Medieval Woollens: Struggle for Markets', pp. 278-88, 292-96; Munro, 'Industrial Protectionism', pp. 229-68; Munro, 'Anglo-Flemish Competition', pp. 37-60; Munro, 'Symbiosis of Towns and Textiles', pp. 1-74. Broadcloths that were dyed either partially or wholly in 'grain' (in kermes, the scarlet dye) were subjected to much higher duties; but few were exported in the later medieval era.

dominance in the English cloth export trade – usually commanding 75 to 85 percent of total exports.⁹⁴ During the later fourteenth and early fifteenth centuries, their cloth-export duties amounted to about 2.5 per cent of the mean value of broadcloths that they shipped (i.e. about £2 to £2 10s 0d per broadcloth). Since, as we have seen in Table 1, wool export duties (for denizens) amounted to about 50 percent of the value of fine wool, in the later fourteenth and early fifteenth centuries, we may calculate the cost advantage of the English cloth trade over its Flemish rivals at about 25 to 30 per cent. By the early fifteenth century, the mean export values of English woollens were only about only 35 - 40 percent of the prices for the finer Flemish and Brabantine woollens, though they were not of the same quality.⁹⁵

Manorial demesne agriculture and the cloth export trade

As Tables 7 - 8 indicate, the quinquennial means of total English broadcloths rose from a mere 1,921.2 cloths in 1351-55 to a peak of 39,525.20 in 1391-95: 20.57-fold increase. Thereafter, for reasons explained elsewhere, those exports declined to a mean of 27,183.4 cloths in 1411-15; but then recovered to those losses to reach a mean of 40,274.6 cloths in 1421-25.⁹⁶ To what extent, therefore, did this dramatic expansion of the English cloth export trade compensate for the fall in wool exports, when both phenomena were so closely related? One answer may be found again in Table 8, which combines the total volume of wool and of broadcloth exports into comparable cloths, using the accepted ratio of 4.333

⁹⁴ See Munro, 'Medieval Woollens: Struggle for Markets', Table 5.4, pp. 306-07. See also John Munro, 'Hanseaic Commerce in Textiles from the Low Countries and England during the Later Middle Ages: Changing Trends in Textiles, Markets, Prices, and Values, 1290 - 1570', in Marie-Luise Heckmann and Jens Röhrkasten, eds., *Von Nowgorod bis London: Studien zu Handel, Wirtschaft und Gesellschaft im mittelalterlichen Europa: Festschrift für Stuart Jenks zum 60. Geburtstag*, Nova Mediaevalia, Quellen und Studien zum europäischen Mittelalter, vol. 4 (Göttingen: Vandenhoeck & Ruprecht Unipress, 2008), pp. 97-182.

⁹⁵ Munro, 'Medieval Woollens: Struggle for Markets', Table 5.10, pp. 318-24; Munro, 'Industrial Protectionism', Table 13.3, pp. 257-62, Table 13.5, pp. 266-67; Munro, 'New Draperies', Tables 1-2, pp. 39-40, Table 3, pp. 42-44; Munro, 'Symbiosis', Table 2, p. 50; and especially Munro, 'Three Centuries of Luxury Textile Consumption;', Tables 1.3 - 1.4, pp. 20-25; Tables 1.5-1.6, pp. 27-29; Table 1.7, pp. 31-32; Tables 1.11 - 1.17, pp. 39-50.

⁹⁶ See Munro, 'Medieval Woollens: Struggle for Markets', pp. 283-88; Munro, 'Hanseaic Commerce', pp. 97-102; and other sources cited in nn. 83-88 above.

broadcloths to a sack of wool.⁹⁷ From the peak to trough, the quinquennial mean of those combined exports (expressed in terms of cloths) fell 42.84 percent: from a mean of 150,615 broadcloths in 1356-60 to 86,087.22 cloths in 1411-15. The just noted recovery in the 1420s was not sustained; and by the end of the statistical series tabulated here, in 1446-50, the combine total of such exports was the equivalent of only 88,172.63 cloths: just 58.53 percent of that exported in 1356-60 (*after* the Black Death).

That evidence does not offer much support to the view that English manorial lords could have maintained the prosperity of their demesnes, in the late fourteenth century, by switching their wool sales from merchants linked to the Calais Staple to the ‘broggers’ who dealt with domestic clothiers, even if can assume that they had the commercial opportunities and agents to do so. Those clothiers certainly did service both the home and foreign markets. But we have no data at all on changes in domestic consumption, apart from indirect evidence from the royal aulnage accounts, which, of course do not indicate whether such production was destined for local or foreign markets.⁹⁸ Since the domestic English cloth industry had evidently replaced most foreign cloth imports by the 1340s,⁹⁹ any further prospects of growth thereafter were undoubtedly curbed by the severe fall in English population after the Black

⁹⁷ Note that one English wool sack weighed 26 stones = 364 lb. = 165.108 kg. One woollen broadcloth of assize measured 24.0 by 1.75 yards, when finished, and weighed about 64 lb.= 29.03 kg. See Munro, ‘Medieval Woollens: Struggle for Markets’, Table 5.7, pp. 314-15; Munro, ‘Three Centuries of Luxury Textile Consumption’, Table 1.1, p. 10. As indicated by these data, about 25% of the weight of the raw wool was lost in the conversion into broadcloths. See Carus-Wilson and Coleman, *England’s Export Trade*, pp. 13-16.

⁹⁸ The fourteenth-century aulnage statistics were published in H.L. Gray, ‘The Production and Exportation of English Woollens in the Fourteenth Century’, *English Historical Review*, 39:153 (Jan. 1924), 13-35. The use of these aulnage accounts was severely criticized in Eleanora M. Carus-Wilson, ‘The Aulnage Accounts: a Criticism’, *Economic History Review*, 1st ser., 2:1 (Jan. 1929), 114-23. Those criticisms which may be valid for the late fifteenth century, but not for the fourteenth, not according to Anthony R. Bridbury, *Economic Growth: England in the Later Middle Ages* (London, 1962), pp. 39-82; and A. R. Bridbury, *Medieval English Clothmaking: An Economic Survey*, Pasold Studies in Textile History (London, 1982), pp. 62-85.

⁹⁹ E. M. Carus-Wilson ‘Trends in the Export of English Woollens in the Fourteenth Century,’ *Economic History Review*, 2nd ser., 3:2 (1950), 162-79; reprinted in Eleanora M. Carus-Wilson, *Medieval Merchant Venturers: Collected Studies* (London, 1954), pp. 239-64; Munro, ‘Crisis of the English Textile Towns’, pp. 103-41.

Death – perhaps by as much as 40 percent or more.¹⁰⁰

The variety of economic responses in the manorial shift from *Gutsherrschaft* to *Grundherrschaft*

Before making any final conclusions, we must not, however, assume that all manorial lords were experiencing economic difficulties in the late fourteenth and early fifteenth centuries. Some, for reasons already explained, were evidently able to benefit from switching to the production of other livestock products (i.e., other than wool): especially meat, dairy products, hides (leather). They may indeed have benefitted from a relative shift in consumption to such products, as Christopher Dyer has now amply demonstrated, with the sustained rise, in real wages, and possibly other real incomes as well, by the late fourteenth century (Tables 3 - 4).¹⁰¹ J. M. Bean notes that many gentry landowners maintained sheep flocks more for meat than for the wool clips in the later fourteenth, early fifteenth centuries. Furthermore, while observing that ‘by 1420 the great laymen had withdrawn from the cultivation of grain on their demesnes’, he contended that ‘the abandonment of pastoral activities occurred later than that of arable farming’. Again according to Bean, ‘lay magnates continued to maintain large flocks of sheep beyond 1420’; and not until the 1440s did the Duchy of Lancaster give up its large sheep flocks.¹⁰² Similarly, for the Bishop of Worcester’s estates, Dyer found that, while almost all arable demesnes had been leased by 1410, some sheep pastures ‘were retained under direct management’, especially in the Cotswolds,

¹⁰⁰ See sources on English demography in nn. 12, 14-17, 29, above.

¹⁰¹ Christopher Dyer, ‘English Diet in the Later Middle Ages’, in T. H. Aston, P. R. Coss, C. Dyer, Joan Thirsk, eds., *Social Relations and Ideas: Essays in Honour of R. H. Hilton* (Cambridge University Press, 1983), pp. 191 - 216; Christopher Dyer, ‘Changes in Diet in the Late Middle Ages: The Case of Harvest Workers’, *The Agricultural History Review*, 36 (1988), 21 - 38; Christopher Dyer, *Standards of Living in the Later Middle Ages: Social Change in England c. 1200 - 1520* (Cambridge, 1989), especially chapters 5-8; Christopher Dyer, ‘The Consumer and the Market in the Later Middle Ages’, *Economic History Review*, 2nd ser., 42:3 (August 1989), 305-27; Michael Hicks, ed., *Revolution and Consumption in Late Medieval England* (Woodbridge, UK: The Boydell Press, 2001); Munro, ‘Black Death’, pp. 335-64.

¹⁰² Bean, ‘Landlords’, pp. 574-76. See also Dyer, *Lords and Peasants* (1980), pp. 148-54; Bolton, *Medieval English Economy*, pp. 228-29; Power, *Wool Trade*, pp. 38-40: also acknowledges that many manorial lords retained sheep flocks longer than they did grain cultivation on their demesnes – but the consumer products from these sheep are not mentioned.

which then produced some of England's finest wools.¹⁰³ In the late 1440s, about five Worcester manors were still maintaining up to 2,900 sheep: about 60 percent of the total sheep that eleven manors had been raising in the 1380s. But, in 1454, after a long decline in livestock prices, a flock of 2,500 sheep was 'farmed' to the lessee of the Bibury and Wilkington demesnes, and then sold outright in 1458, ending virtually all direct management on the Worcester episcopal estates.¹⁰⁴

Such evidence casts new light on Eileen Power's classic repudiation of a former orthodoxy in economic history, a repudiation repeated by many other historians: namely, that late-medieval England had undergone a shift from arable into pastoral farming.¹⁰⁵ She had based that repudiation of the statistical evidence for the steep decline of English wool exports. Evidently she did not consider the possibility that pastoral farming and livestock had uses other than wool production.

While in some cases, that transformation in mixed husbandry had meant just a shift from wool production to other forms of livestock production, in other manorial estates that reorientation had indeed required a major shift from arable into pasture. With such extensive declines in population by the later fourteenth century, those landlords who had too many vacated tenancies, with abundant lands *in manu dominici*, found such conversions relatively easy to achieve.

In addition to Campbell's extensive agrarian data already cited, we can also not from his statistical tables that the mean cropped areas on English manorial demesnes fell from 172.1 acres in

¹⁰³ Dyer, *Lords and Peasants*, pp. 148-54: especially on the Blockley, Withington, Bribury, Hampton, and Kempsey manors. The finest wools came from the Welsh Marches of Herefordshire and Shropshire; the next best, from the adjacent Cotswolds (Worcestershire, Gloucestershire, Oxfordshire). See Munro, 'Wool Price Schedules', pp. 118-69.

¹⁰⁴ Dyer, *Lords and Peasants*, pp. 150-54.

¹⁰⁵ Power, *Wool Trade*, p. 35: 'It is difficult to find signs of that wholesale substitution of pasture for arable farming which, according to textbooks, happened after the Black Death'. For a repetition of such a view, see Sir John Clapham, *A Concise Economic History of Britain, From Earliest Times to 1750* (Cambridge and New York: Cambridge University Press, 1957), p. 122 (citing Power). See also J. R. Bolton, *The Medieval English Economy, 1150 - 1500* (London: J. M. Dent & Sons, 1980), p. 228: 'There was no salvation, either, in switching from arable to sheep farming'.

1300-49 to a mean of 142.8 acres in 1300-1450, a decline of 17.02 percent. For those counties servicing the London market, for a different set of comparisons periods, 1288-1315 and 1375-99, the mean cropped or sewn demesne areas fell even more: 23.21 percent, from a mean of 224.0 acres to one of 172.0 acres.¹⁰⁶ Whether those changes reflected an actual physical contraction in the demesne or some shift to pasture – especially with the aforesaid data on mean livestock densities – is not entirely clear.

Not all manorial lords were able, however, to make such adjustments and to cope well with the new, harsh economic realities. We may now make a better, or more informed assessment of the economic plight that so many English manorial lords, lay and ecclesiastical, were facing in the 1380s and 1390s: more particularly, those who earlier profited from a *Gutsherrschaft* demesne economy that had been oriented especially to the sale of grains and wools. As we have seen, those who had specialized more in grain production faced a severe price-cost squeeze with plummeting grain prices and rising costs of both labour capital (i.e., rising *real* rates of interest). Their labour problems lay not just in the rising wages of agricultural workers, but a bleak scarcity of labour that could not readily be resolved.

We hardly need now belabour the often cited point, so developed in the literature on the decline of English serfdom from this era, that so many manorial lords found it more and more difficult to exact labour services from their villein tenants.¹⁰⁷ Kosminsky, having focused on this particular problem, concluded that the lesser manorial lords, the gentry small holders, would have fared better in this economically depressed era, because they had relied to a far lesser degree on villein labour; but he did not take full account of the sharp rises in piece-work rates for hired agricultural labourers and rising

¹⁰⁶ Campbell, *English Seigniorial Agriculture*, Table 4.07, pp. 174-75. In this table, livestock units per 100 grain acres rose from 64.80 in 1300-49 to 89.30 in 1400-50, for all English manors surveyed: ‘all national means are the weighted product of six regional means: Norfolk, eastern counties, south-east, midlands, south-west, and the north: 41 counties and districts. The livestock units are: horses = 1.0; oxen and adult cattle = 1.2; immature cattle = 0.8; sheep and swine = 0.1.

¹⁰⁷ See Hilton, *Decline of Serfdom*, pp. 52-59; and other sources cited in nn. 7, 9-11, 18-20, 26, 69, above. See also the Appendix on English serfdom with *Gutsherrschaft* manorial economies.

capital costs, i.e., again in *real* terms.¹⁰⁸

Many manorial lords, even in the class Midlands zone of sheep-corn husbandry, were not able to make rapid adjustments from costly labour-intensive arable to relatively less costly land-intensive pastoral economies, in part because of institutional rigidities in open field farming. That was all the more true if they had allowed their demesnes to become intermixed, in plough strips, with those of their tenants, especially to take advantage of the peasant tenants' communal ploughing.¹⁰⁹ On the other hand, those manorial lords who had been more oriented towards sheep raising for wool exports were experiencing perhaps a lesser degree of that price-cost squeeze, if their labour costs for sheep raising were relatively lower than those for arable farming (especially given the productivity changes noted earlier);¹¹⁰ but obviously they may have experienced an even sharper fall in wool sales, and thus revenues, than in grain sales.

The economic and social varieties of demesne leasing:

With such adverse economic conditions, therefore, the rational response of many manorial lords was to shift their manorial economy from *Gutsherrschaft* to *Grundherrschaft*, in part, if not in whole. The most common option was to lease out more and more of their demesnes into leasehold tenancies, and also to convert vacant villein tenancies into leaseholds, without any servile obligations – certainly not

¹⁰⁸ Evgenii A. Kosminsky, *Studies in the Agrarian History of England in the Thirteenth Century*, ed. R. H. Hilton and trans. Ruth Kisch, *Studies in Mediaeval History*, vol. 8 (Oxford: Blackwell, 1956) chapter 5, pp. 256-82, esp. p. 276: 'The abandonment of labour services at the end of the fourteenth century was a catastrophe for the large manors, which in a number of cases were compelled to abandon cultivation of the demesne and to lease it out on terms not always advantageous to the lessor. But this development had comparatively little effect on the small manor where labour services were few, and where their abolition required no radical alteration to the system of husbandry.'

¹⁰⁹ See Richard H. Tawney, *The Agrarian Problem in the Sixteenth Century* (London, 1912: re-issued New York and London: Harper Torchbooks, 1967), maps I-V, between pp. 166-67: of Salford, Edgware, Maids Morton, Weedon Weston manors, in the 1590s, showing the intermixing of demesne lands with those of tenancy lands (plough strips).

¹¹⁰ See pp. ; and also Dyer, *Lords and Peasants*, pp. 150-51, noting that on the Worcester manors of 1449-50, some 400-500 sheep were managed by one shepherd, compared to only 250-300 sheep per shepherd in the late 1380s.

labour obligations. Hilton cites very useful examples of such leaseholds, from a Coventry Cathedral estate register of 1411, concerning the disposition of lands in eleven demesnes in Warwickshire and Leicestershire. The terms of such leases varied widely: for as few as three years to as many as sixty years. Many other examples are found of ‘life-leases’, which usually meant only about twenty years. Thus, even longer terms were found at Tavistock Abbey (Benedictine: in Devonshire), where ‘the trend was towards a stabilisation of leasehold terms to forty years’.¹¹¹ On the Westminster Abbey estates, Harvey similarly found that demesne leases were typically for twelve years in the 1390s, but for twenty years in the 1430s and thirty to forty years in the 1450s and 1460s.¹¹² On the bishop of Worcester’s estates, Dyer also documents a distinct trend to longer leases, with larger blocks of lands: from a predominance of leases from ten to twenty years in the early fifteenth century, to leases of twenty to forty years in the mid-century to leases of fifty to sixty years by the early sixteenth century.¹¹³

During the deflationary era from the 1370s to the 1420s, most landlords would have preferred a longer term over a short term lease. For them, the long-term benefits were obvious – though just as obviously nobody then could have predicted how long the deflation would last (or, perhaps, even have been conscious of the deflation itself). For leasehold rents, especially if they were money rents (and not all were), represented a fixed cost for the tenant, and a fixed benefit for the landlord holding the lease. Thus, deflation, with a general fall in consumer price, *ipso facto* meant that the *real* value of the annual rents was steadily rising. Now the burden of sustaining rising operating costs in commercial agriculture had to be born by the tenants, especially if they were unable to depend wholly on family labour and thus had to hire more costly agricultural labourers. The ‘trade-off’ for such peasants presumably lay in having that much more land to work, and, if they were villeins by ancestry, greater

¹¹¹ Hilton, *Serfdom*, p. 45-46. The example from Coventry Cathedral had the following terms: 3 years, 8 years, 12 years, 14 years, 22 years, 60 years, and three other tenancies were ‘at will’.

¹¹² Harvey, ‘Leasing’, pp. 18-21.

¹¹³ Dyer, *Lords and Peasants*, pp. 210-11.

freedom as well. For obviously also, for reasons discussed earlier, when manorial lords abandoned direct commercial cultivation of their former demesnes, they obviously had a much lesser need, or even no need, for villein labour services – though many still continued to profit from other servile financial obligations, such as *merchet*.¹¹⁴

The most interesting question now becomes: who were the lessees of the Midlands' demesne lands; and how did their composition change by the later fifteenth century? Harvey states that the majority of lessees in the early fifteenth century were 'working farmers, and, in this sense peasants, though not of the smallest sort'.¹¹⁵ Both she and Dyer found a predominance then of the 'ministerial-type lessee': village reeves and rent collectors, whose services had given 'a mere customary tenant some of the expertise and a little of the money' required for larger-scale farming on sizeable blocks of demesne lands.¹¹⁶ In his study of the Ramsey Abbey manor of Holywell-cum-Needingworth, DeWindt also found that the chief beneficiaries of both leasing and land redistributions (of vacated tenancies) from the 1370s were the more substantial customary peasant tenants, 'with an intensified trend towards the concentration of customary tenements in fewer hands', into the fifteenth century.¹¹⁷ Similarly, Rodney Hilton concluded, from analysing the accounts of the Leicester Abbey manors, that 'the process of the division of the peasantry into a richer and richer section and a more and more landless section went on', from the later fourteenth-century agrarian crises well into the fifteenth century. Indeed, by the end of that century, 'a small class of rich peasants had consolidated itself' on these Leicester estates: having (evidently) taken over the abbey demesnes to cultivate very sizeable arable acreages of 60 to 80 acres – compared to the

¹¹⁴ See Hilton, *Decline of Serfdom*, pp. 51-59 ('The last profits of serfdom').

¹¹⁵ Harvey, 'Leasing', p. 20

¹¹⁶ Harvey, 'Leasing', pp. 20-21; Dyer, *Lords and Peasants*, pp. 211-17.

¹¹⁷ DeWindt, *Holywell*, pp. 110-11.

largest tenancies in 1341, then no larger than 30 acres.¹¹⁸ Both of these historians thus contradict, at least implicitly, Postan's hypothesis that such land redistributions narrowed the gap between richer and poorer peasants.¹¹⁹ The latter were largely unable to take part in the more capital-intensive and land-extensive forms of agriculture that current economic circumstances demanded.

Furthermore, both Harvey and Dyer also found that, during the course of the fifteenth century, gentry farmers and some merchants became gained more importance as lessees.¹²⁰ Du Boulay, though examining only some estates of the Archbishop of Canterbury, chiefly for the early sixteenth century, states that about one third of the lessees were gentry, about half were yeomen farmers, and the rest chiefly London merchants.¹²¹

As Du Boulay, Harvey, and Dyer also stress, demesnes were often leased in their entirety, or at least in large blocks of land, to single tenants, or joint-tenants (often in a family), increasingly so during the fifteenth century. Certainly, many of these new tenants could aptly be termed agricultural entrepreneurs. Those with capital resources – perhaps with a better access to capital than many manorial lords – could and did profit from that increased reorientation to livestock agriculture.¹²² At the same time,

¹¹⁸ Hilton, *Leicestershire Estates*, pp. 104-105.

¹¹⁹ For Postan, the key change, from the later fourteenth century, was 'the promotion of the poorer villagers into higher ranks'. Michael Postan, *The Medieval Economy and Society: An Economic History of Britain in the Middle Ages* (London: Weidenfeld and Nicolson, 1972), pp. 140-42. For a more nuanced view, see Michael Postan, 'Medieval Agrarian Society in Its Prime: England', in *The Cambridge Economic History*, Vol. I: *Agrarian Life in the Middle Ages*, 2nd rev. edn. (Cambridge, 1966), pp. 628-32. In the fifteenth century, 'average holdings of all villagers grew, and ... the largest holdings became larger and the smallest holdings became fewer'; but 'the progress of social differentiation in the fifteenth century would often appear great or small according to the statistical method chosen to measure it' (p. 632).

¹²⁰ Harvey, 'Leasing', p. 20 (direct quotation); Dyer, *Lords and Peasants*, pp. 211-16.

¹²¹ Du Boulay, 'Farming the English Demesnes', pp. 443-55, esp. p. 451.

¹²² See source in nn. 117-118. This very point is also made succinctly in Raftis, 'Collapse of the Manorial Economy,' pp. 191-206; and in Raftis, *Peasant Economic Development*, chapter 4, 'Capital Conquers', pp. 65-78. See also J. Ambrose Raftis, *Tenure and Mobility: Studies in the Social History of the Mediaeval English Village* (Toronto: Pontifical Institute of Mediaeval Studies, 1964).

many lessees had gained not only the use of demesne lands but also livestock and other forms of capital that were included, though such capital inclusions became less frequent over the course of the fifteenth century.¹²³

The variety of these agrarian changes is far too great, far too complex to be a further object of this study. Nevertheless, in order not to miss the forest for all trees, we may observe that late-medieval England, especially in the years from the 1370s to 1420s underwent a fundamental shift in its manorial economies from *Gutsherrschaft* to *Grundherrschaft*, if by no means a wholesale shift, and furthermore that such a shift occurred, not because, or just because so many English peasants were demanding more land and more freedom, on better terms, but because many perfectly rational manorial lords found that such a shift was both economically necessary and economically desirable – that they profited from doing so, as did many of their tenant lessees.

A final question to be posed: was this a permanent shift? The answer, one may suggest, is no, if one interprets the subsequent Tudor enclosure movements, especially the first phase, from the 1470s to the 1520s, as a shift back to *Gutsherrschaft*. But that is another story to be told.

¹²³ Harvey, 'Leasing', pp. 20-21. She offers the hypotheses that manorial lords became less willing to provide such capital in their leases when they realized that they would never regain these former demesne lands.

Table 1 Prices and Price Indexes for Wools, Livestock Products and the Phelps Brown and Hopkins Composite

Price Index, and wool export taxes, in quinquennial means: from 1331-35 to 1446-1450

Prices in shillings and pounds sterling

Price Indexes: mean of 1451-75 = 100

Woolsack = 364 lb. = 165.018 kg

Year	Mean	Price	Mean	Price	Phelps	PB&H	Denizen	Denizen	Alien	Alien	Mean
5 year	Prices	Index	Price	Index	Brown &	Livestock	Export	Export	Export	Export	Price of
means	per	1451-75	per	1451-75 =	Hopkins	Index	Duties	Duties	Duties	Duties	Better
	Sack	100	Sack	100	CPI	1451-75	on Wool	as Per	on Wool	as Per	Wools
	All	sterling	Better	£4.8544	1451-75 =	100	Sacks	Cent	Sacks	Cent	with Export
	Wools		Wools*		100	beef, pigs	in	of Wool	in	of Wool	Taxes
	£ sterl		£ sterl		(Munro)	mutton	shillings	Prices	shillings	Prices	(Denizen)
							sterling		sterling		£ sterl
1331-35	5.031	144.080	5.370	110.610	109.108	110.021	10.373	9.66%	14.559	13.56%	5.888
1336-40	4.264	122.110	4.646	95.700	89.256	96.346	29.556	31.81%	41.501	44.67%	6.123
1341-45	4.498	128.830	4.947	101.910	85.533	89.666	40.247	40.68%	43.333	43.80%	6.959
1346-50	4.222	120.910	4.713	97.090	100.064	94.572	40.000	42.43%	43.333	45.97%	6.713
1351-55	3.923	112.360	4.446	91.580	126.472	113.987	40.000	44.99%	43.333	48.74%	6.446
1356-60	4.050	116.000	5.243	108.010	118.092	108.455	40.000	38.14%	43.333	41.32%	7.243
1361-65	4.306	123.310	5.606	115.470	137.976	131.419	42.776	38.16%	46.110	41.13%	7.744
1366-70	5.624	161.080	6.689	137.800	136.460	131.607	46.667	34.88%	50.000	37.37%	9.023
1371-75	6.422	183.920	7.895	162.640	127.345	143.653	50.000	31.67%	53.333	33.78%	10.395
1376-80	6.582	188.490	7.536	155.240	109.891	118.580	50.000	33.17%	53.333	35.38%	10.036
1381-85	5.097	145.960	5.995	123.490	113.190	110.890	50.000	41.70%	53.333	44.48%	8.495
1386-90	4.111	117.740	5.071	104.460	101.233	108.055	48.516	47.84%	52.166	51.43%	7.497

Year	Mean	Price	Mean	Price	Phelps	PB&H	Denizen	Denizen	Alien	Alien	Mean
5 year means	Prices per Sack All Wools £ sterl	Index 1451-75 100 £3.4917 sterling	Price per Sack Better Wools* £ sterl	Index 1451-75 = 100 £4.8544	Brown & Hopkins CPI 1451-75 = 100 (Munro)	Livestock Index 1451-75 100 beef, pigs mutton	Export Duties on Wool Sacks in shillings sterling	Export Duties as Per Cent of Wool Prices	Export Duties on Wool Sacks in shillings sterling	Export Duties as Per Cent of Wool Prices	Price of Better Wools with Export Taxes (Denizen) £ sterl
1391-95	4.266	122.170	4.953	102.040	103.953	106.471	49.830	50.30%	53.163	53.66%	7.445
1396-1400	4.814	137.860	5.241	107.970	110.648	111.064	50.000	47.70%	56.555	53.95%	7.741
1401-05	5.065	145.050	5.702	117.460	112.653	110.071	51.187	44.89%	61.187	53.66%	8.261
1406-10	4.974	142.440	6.219	128.114	109.927	106.555	50.000	43.41%	60.000	52.09%	8.259
1411-15	5.426	155.380	5.954	122.650	108.261	105.599	50.000	41.99%	60.000	50.39%	8.454
1416-20	4.155	119.000	4.592	94.590	113.598	103.055	50.000	54.45%	68.000	74.05%	7.092
1421-25	4.205	120.420	5.269	108.540	103.740	93.213	43.841	41.60%	62.658	59.46%	7.461
1426-30	4.613	132.110	5.015	103.300	112.610	99.581	40.000	39.88%	53.333	53.18%	7.015
1431-35	4.928	141.130	5.613	115.630	109.122	106.078	40.000	35.63%	57.103	50.86%	7.613
1436-40	4.440	127.160	5.322	109.630	124.218	109.585	40.000	37.58%	62.267	58.50%	7.322
1441-45	4.188	119.930	5.201	107.150	92.574	96.624	40.000	38.45%	63.333	60.88%	7.201
1446-50	4.119	117.960	5.379	110.800	101.241	106.245	40.000	37.19%	63.333	58.88%	7.379

* Prices for wools from Wiltshire, Hampshire, and St. Swithin's manors (all of the Bishop of Winchester's manors), Wiltshire and the Berkshire Downs, the Vale of White Horse to Thames Valley; Oxfordshire, Berkshire, and adjacent Wiltshire; Worcestershire, the Cotswolds (Oxfordshire, Gloucestershire, and adjacent Wiltshire); the Chilterns (Oxon, Bucks, Herts); NE Oxfordshire and north Bucks.

Sources:

English Wool Prices and Export Duties:

Terence H. Lloyd, *The Movement of Wool Prices in Medieval England*, Economic History Review Supplements no. 6 (Cambridge, 1973), Statistical Appendix, cols. 2-5, 10-13; pp.35-51; *Calendar of the Fine Rolls, Edward II - Henry VII*, Vols. IV (1327-1337) to XXI (1471-1485); *Rotuli parliamentorum ut et petitiones et placita in Parlamento*, 6 vols. (London, 1767-77), Vols. II - V; F.R. Barnes, 'The Taxation of Wool, 1327-1348', in G. Unwin, ed., *Finance and Trade Under Edward III* (London, 1918), pp. 137-77; N.S.B. Gras, *The Early English Customs System* (Cambridge, Mass., 1918), pp. 76-80; E.M. Carus Wilson and Olive Coleman, eds., *England's Export Trade, 1275-1547* (Oxford, 1963), pp. 194-96; W.M. Ormrod, 'The Crown and the English Economy, 1290-1348', in Bruce M.S. Campbell, ed., *Before the Black Death: Studies in the 'Crisis' of the Early Fourteenth Century* (Manchester, 1991), pp. 149-83.

Prices: based upon the Phelps Brown and Hopkins 'Basket of Consumables' Price Index:

Archives of the British Library of Political and Economic Science, the Phelps Brown Papers Collection: boxes Ia:324, J.IV.2a;

These archives contain Phelps Brown's original hand-written working papers, with prices for individual commodities contained in the Phelps Brown and Hopkins 'basket of consumables' price index, which they had presented in:

E. H. Phelps Brown and Sheila V. Hopkins, 'Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates', *Economica*, 23:92 (November 1956), 296-314: reprinted in E.M. Carus-Wilson, ed., *Essays in Economic History*, 3 vols. (London, 1954-62), II, 168-78, 179-96, and in E.H. Phelps Brown and Sheila V. Hopkins, *A Perspective of Wages and Prices* (London, 1981), pp. 13-39 (with price indexes not in the original).

Apart from correcting hundreds of computational errors in their original series, I constructed an entirely new index based on actual prices rather than their index numbers. Using the data in their worksheets, for each commodity, I first calculated the annual prices for all the commodities in the basket. Then using their commodity weights, I calculated the sum value of those commodities, to calculate the annual value of the basket. I then constructed the price index, with their base, 1451-75 = 100, from the values of the basket for each year in that 25-year base period.

While the original PB&H commodity basket consisted of fixed commodity weights throughout the entire series – so that, for example, grain prices always account for 20 percent of the total weight in the basket, the commodity weights, in my revised version, change with changes in relative prices. Thus, when grain prices rise more than do other commodity prices, the weight given to grain prices correspondingly rises, while the weights for other commodity prices correspondingly fall. The commodity weights for the basket are thus fixed only for the base period: 1451 - 75 = 100.

Table 2. English Wools Price Index, Phelps Brown & Hopkins Composite Price Index and the PBH Farinaceous and Livestock Price Indexes, with the mean of 1451-75 =100

from 1331-35 to 1446-50, in quinquennial means

Year	Phelps Brown & Hopkins Composite Index 1451-75=100 (Munro version)	Price Index for Wools: £4.8544 sterling better quality* 1451-75=100	Price Index for Total Grains wheat, rye, barley, peas 1451-75=100	Price Index For Livestock pigs mutton beef 1451-75=100	Ratio of Wool Prices to Grain Prices	Ratio of Wool Prices to PBH CPI	Ratio of Grain Prices to CPI	Ratio of Livestock Prices to Grain Prices	Ratio of Livestock Prices to the CPI
1331-35	104.712	110.610	110.302	110.021	100.283	105.636	105.338	99.745	105.069
1336-40	109.108	95.700	84.730	96.346	112.945	87.710	77.657	113.709	88.304
1341-45	89.256	101.910	81.356	89.666	125.265	114.176	91.148	110.215	100.458
1346-50	85.533	97.090	101.499	94.572	95.659	113.515	118.666	93.175	110.567
1351-55	100.064	91.580	131.100	113.987	69.853	91.519	131.016	86.947	113.914
1356-60	126.472	108.010	115.863	108.455	93.222	85.401	91.611	93.606	85.754
1361-65	118.092	115.470	130.413	131.419	88.545	97.782	110.433	100.772	111.285
1366-70	137.976	137.800	150.487	131.607	91.568	99.872	109.068	87.454	95.384
1371-75	136.460	162.640	133.638	143.653	121.700	119.183	97.932	107.494	105.271
1376-80	127.345	155.240	96.219	118.580	161.343	121.907	75.558	123.239	93.117
1381-85	109.891	123.490	104.029	110.890	118.711	112.378	94.666	106.595	100.909
1386-90	113.190	104.460	83.336	108.055	125.351	92.290	73.625	129.661	95.463
1391-95	101.233	102.040	96.639	106.471	105.588	100.797	95.462	110.175	105.175
1396-1400	103.953	107.970	105.084	111.064	102.743	103.861	101.088	105.691	106.841
1401-05	110.648	117.460	117.530	110.071	99.936	106.152	106.220	93.653	99.478
1406-10	112.653	118.640	108.229	106.555	109.620	105.316	96.073	98.453	94.587
1411-15	109.927	122.650	91.411	105.599	134.175	111.575	83.156	115.522	96.063
1416-20	108.261	94.590	114.066	103.055	82.922	87.368	105.362	90.347	95.191
1421-25	113.598	108.540	94.999	93.213	114.252	95.546	83.627	98.120	82.055

Year	Phelps Brown & Hopkins Composite Index 1451-75=100 (Munro version)	Price Index for Wools: £4.8544 sterling better quality* 1451-75=100	Price Index for Total Grains wheat, rye, barley, peas 1451-75=100	Price Index For Livestock pigs mutton beef 1451-75=100	Ratio of Wool Prices to Grain Prices	Ratio of Wool Prices to PBH CPI	Ratio of Grain Prices to CPI	Ratio of Livestock Prices to Grain Prices	Ratio of Livestock Prices to the CPI
1426-30	103.740	103.300	107.222	99.581	96.340	99.574	103.356	92.874	95.991
1431-35	112.610	115.630	110.106	106.078	105.021	102.686	97.776	96.341	94.199
1436-40	109.122	109.630	148.525	109.585	73.810	100.463	136.109	73.783	100.425
1441-45	124.218	107.150	75.504	96.624	141.908	86.256	60.783	127.972	77.786
1446-50	92.574	110.800	97.399	106.245	113.754	119.684	105.213	109.081	114.767

1 wool sack = 26 stones = 364 lb = 165.108 kg

* Prices for wools from Wiltshire, Hampshire, and St. Swithin's manors (all of the Bishop of Winchester's manors), Wiltshire and the Berkshire Downs, the Vale of White Horse to Thames Valley; Oxfordshire, Berkshire, and adjacent Wiltshire; Worcestershire, the Cotswolds (Oxfordshire, Gloucestershire, and adjacent Wiltshire); the Chilterns (Oxon, Bucks, Herts); NE Oxfordshire and north Bucks.

Sources: see the sources for table 7

Table 3 Phelps Brown and Hopkins: Wages and Prices

Wages for Master Building Craftsmen (masons and carpenters)
compared with the Phelps Brown and Hopkins (Revised) Consumer Price Index
and with the value of the annual real wage income expressed in PBH 'Consumer Baskets'

From 1331-35 to 1446-50 in quinquennial means (arithmetic and harmonic)

RWI = NWI/CPI: Real Wage Index = Nominal Wage Index/Consumer Price Index

5 Year Means	Total Value of PBH Basket in d sterling Arithmetic	PBH Prices Consumer Price Index Munro version 1451-75=100 Arithmetic	Master Nominal Day Wage in d. sterling Arithmetic	Master Mason: Nominal Wage Index 1451-75=100 [= 6d. daily] Arithmetic	RWI = NWI/CPI		Master RWI No. of Baskets Consumed in one year (210 days) Harmonic
					Master Mason: Real Wage Index (Munro) 1451-75=100 Arithmetic	Master Mason: Real Wage Index (Munro) 1451-75=100 Harmonic	
1331-35	123.074	109.108	4.000	66.667	62.454	61.102	6.825
1336-40	100.682	89.256	3.600	60.000	68.025	66.986	7.482
1341-45	96.482	85.533	3.000	50.000	58.586	58.457	6.530
1346-50	112.873	100.064	3.000	50.000	50.478	49.968	5.582
1351-55	142.661	126.472	3.600	60.000	48.657	46.552	5.200
1356-60	133.209	118.092	4.600	76.667	64.902	64.611	7.217
1361-65	155.637	137.976	5.000	83.333	60.609	60.397	6.746
1366-70	153.928	136.460	5.000	83.333	62.159	61.068	6.821
1371-75	143.646	127.345	5.000	83.333	65.966	65.439	7.310
1376-80	123.958	109.891	5.000	83.333	76.871	75.832	8.471
1381-85	127.679	113.190	5.000	83.333	73.729	73.622	8.224
1386-90	114.191	101.233	5.000	83.333	82.501	82.319	9.195

RWI = NWI/CPI: Real Wage Index = Nominal Wage Index/Consumer Price Index

5 Year Means	Total Value of PBH Basket in d sterling Arithmetic	PBH Prices Consumer Price Index Munro version 1451-75=100 Arithmetic	Master Nominal Day Wage in d. sterling Arithmetic	Master Mason: Nominal Wage Index 1451-75=100 [= 6d. daily] Arithmetic	RWI = NWI/CPI		Master RWI No. of Baskets Consumed in one year (210 days) Harmonic
					Master Mason: Real Wage Index (Munro) 1451-75=100 Arithmetic	Master Mason: Real Wage Index (Munro) 1451-75=100 Harmonic	
1391-95	117.259	103.953	5.000	83.333	81.269	80.165	8.955
1396-1400	124.812	110.648	5.000	83.333	75.701	75.314	8.413
1401-05	127.073	112.653	5.100	85.000	76.605	75.156	8.395
1406-10	123.998	109.927	5.800	96.667	88.612	88.115	9.843
1411-15	122.119	108.261	6.000	100.000	92.491	92.369	10.318
1416-20	128.139	113.598	6.000	100.000	88.744	88.030	9.833
1421-25	117.020	103.740	6.000	100.000	96.599	96.395	10.767
1426-30	127.025	112.610	6.000	100.000	90.703	88.802	9.919
1431-35	123.090	109.122	6.000	100.000	91.801	91.641	10.236
1436-40	140.118	124.218	6.000	100.000	84.039	80.504	8.992
1441-45	104.424	92.574	6.000	100.000	108.344	108.022	12.066
1446-50	114.200	101.241	6.000	100.000	98.912	98.774	11.033

Table 4 Phelps Brown and Hopkins: Wages and Prices**Wages For Labourers of Master Building Craftsmen**

**Compared with the Revised Phelps Brown and Hopkins
‘Basket of Consumables’ Consumer Price Index
and with the annual real wage income expressed in PBH ‘Consumer Baskets’**

in quinquennial means (arithmetic and harmonic), 1331 - 35 to 1446-50

1451-75=100

RWI = NWI/CPI

5 Year Means	PBH Prices Consumer Price Index Munro version 1451-75=100 Arithmetic	Labourer Nominal Day Wage in d. sterling Arithmetic	Labourer's Wage as Percent of Master Arithmetic	Mason Labourer Nominal Wage Index 1451-75=100 [= 4d. daily] Arithmetic	Mason Labourer Real Wage Index (Munro) 1451-75=100 Arithmetic	Mason Labourer Real Wage Index (Munro) 1451-75=100 Harmonic	Labourer RWI No. of Baskets Consumed in one year (210 days) Harmonic
1331-35	109.108	2.000	50.00%	50.000	46.841	45.826	3.413
1336-40	89.256	1.800	50.00%	45.000	51.019	50.239	3.741
1341-45	85.533	1.500	50.00%	37.500	43.939	43.843	3.265
1346-50	100.064	1.500	50.00%	37.500	37.858	37.476	2.791
1351-55	126.472	1.800	50.00%	45.000	36.492	34.914	2.600
1356-60	118.092	2.600	56.22%	65.000	54.943	54.039	4.024
1361-65	137.976	3.000	60.00%	75.000	54.548	54.357	4.048
1366-70	136.460	3.000	60.00%	75.000	55.943	54.961	4.093
1371-75	127.345	3.000	60.00%	75.000	59.369	58.895	4.386
1376-80	109.891	3.000	60.00%	75.000	69.184	68.249	5.082
1381-85	113.190	3.000	60.00%	75.000	66.357	66.260	4.934

5 Year Means	PBH Prices Consumer Price Index Munro version 1451-75=100 Arithmetic	Labourer Nominal Day Wage in d. sterling Arithmetic	Labourer's Wage as Percent of Master Arithmetic	Mason Labourer Nominal Wage Index 1451-75=100 [= 4d. daily] Arithmetic	Mason Labourer Real Wage Index (Munro) 1451-75=100 Arithmetic	Mason Labourer Real Wage Index (Munro) 1451-75=100 Harmonic	Labourer RWI No. of Baskets Consumed in one year (210 days) Harmonic
1386-90	101.233	3.000	60.00%	75.000	74.251	74.087	5.517
1391-95	103.953	3.000	60.00%	75.000	73.142	72.148	5.373
1396-1400	110.648	3.000	60.00%	75.000	68.131	67.782	5.048
1401-05	112.653	3.200	62.73%	80.000	72.499	70.065	5.218
1406-10	109.927	3.800	65.45%	95.000	86.910	86.562	6.446
1411-15	108.261	4.000	66.67%	100.000	92.491	92.369	6.879
1416-20	113.598	4.000	66.67%	100.000	88.744	88.030	6.555
1421-25	103.740	4.000	66.67%	100.000	96.599	96.395	7.178
1426-30	112.610	4.000	66.67%	100.000	90.703	88.802	6.613
1431-35	109.122	4.000	66.67%	100.000	91.801	91.801	6.824
1436-40	124.218	4.000	66.67%	100.000	84.039	80.504	5.995
1441-45	92.574	4.000	66.67%	100.000	108.344	108.022	8.044
1446-50	101.241	4.000	66.67%	100.000	98.912	98.774	7.356

Sources for Tables 11 and 12:

For English prices: see sources for Table

For the construction of the PBH 'Basket of Consumables' Consumer Price Index, see:

John Munro, 'Wage-Stickiness, Monetary Changes, and Real Incomes in Late-Medieval England and the Low Countries, 1300 - 1500: Did Money Matter?' *Research in Economic History*, 21 (2003), 185 - 297; John Munro, Builders' Wages in Southern England and the Southern Low Countries, 1346 -1500: A Comparative Study of Trends in and Levels of Real Incomes', in Simonetta Cavaciocchi, ed., *L'Edilizia prima della rivoluzione industriale, secc. XIII-XVIII*, Atti delle "Settimana di Studi" e altri convegni, no. 36, Istituto Internazionale di Storia Economica "Francesco Datini" (Florence: Le Monnier, 2005), pp. 1013-76.

Wages for building craftsmen's labourers in south-eastern England:

Henry Phelps Brown and Sheila Hopkins, 'Seven Centuries of Building Wages', *Economica*, 22:87 (August 1955), 195-206; reprinted in Henry Phelps Brown and Sheila Hopkins, *A Perspective of Wages and Prices* (London: Methuen, 1981), pp. 1- 12.

**Table 5. Wages for English Farm Workers and
for Urban Building Labourers
in pence per day, 1331 -35 to 1496- 1500**

in quinquennial means

Year	Rate per day in d	Index 1451-75 = 100	Building Labourer in d	Index 1451-75 = 100	Labourer as % of Farm Worker
1331-35	1.47	39.52	2.00	66.67	136.05
1336-40	1.51	40.55	1.80	60.00	119.36
1341-45	1.47	39.52	1.50	50.00	102.04
1346-50	1.77	47.64	1.50	50.00	84.65
1351-55	2.71	72.81	1.80	60.00	66.47
1356-60	2.54	68.29	2.60	76.67	102.36
1361-65	2.75	73.89	3.00	83.33	109.17
1366-70	2.84	76.31	3.00	83.33	105.71
1371-75	3.06	82.38	3.00	83.33	97.91
1376-80	3.15	84.80	3.00	83.33	95.12
1381-85	3.11	83.73	3.00	83.33	96.34
1386-90	3.07	82.65	3.00	83.33	97.59
1391-95	2.89	77.65	3.00	83.33	103.88
1396-1400	3.21	86.36	3.00	83.33	93.40
1401-05	3.48	93.62	3.20	85.00	91.90
1406-10	3.49	93.94	3.80	96.67	108.76
1411-15	3.53	94.97	4.00	100.00	113.25
1416-20	3.37	90.66	4.00	100.00	118.62
1421-25	3.53	94.81	4.00	100.00	113.44
1426-30	3.61	96.96	4.00	100.00	110.93
1431-35	3.65	98.14	4.00	100.00	109.59
1436-40	3.73	100.34	4.00	100.00	107.18
1441-45	3.65	98.03	4.00	100.00	109.71

Year	Rate per day in d	Index 1451-75 = 100	Building Labourer in d	Index 1451-75 = 100	Labourer as % of Farm Worker
1446-50	3.67	98.73	4.00	100.00	108.93

Sources:

(1) English Farm Workers: Gregory Clark, 'The Long March of History: Farm Wages, Population, and Economic Growth: England, 1209-1869', *The Economic History Review*, 2nd ser., 60:1 (February 2007), 97-135;

(2) English urban building labourers: see sources for Table 14

Table 6 **Basket of Consumables commodity price indexes****For England, 1300 - 1500****mean of prices for: 1451-75 = 100****Munro's Revision of the Phelps Brown and Hopkins****'Basket of Consumables' Price Index**

Commodity	Amount	Unit	Metric Measure	Percent by PBH weights	Value in d sterling	Percent by value (Munro)
Farinaceous						
	1.250	bu	45.461		9.967	8.84%
Rye	1.000	bu	36.369		6.279	5.57%
Barley	0.500	bu	18.184		2.606	2.31%
Peas	0.667	bu	24.243		2.947	2.61%
Sub-total	3.417	bu	124.257	20.00%	21.799	19.33%
Drink						
barley (or malt)	4.500	bu	163.659	22.50%	24.227	21.48%
Total Farinaceous	7.917	bu	287.917	42.50%	46.026	40.80%
Meat, Fish, Dairy						
Sheep	0.500	no.	0.050		8.532	7.56%
Pigs	0.500	no.	0.050	21.00%	15.418	13.67%

Herrings	40.000	no.	40.000	4.00%	6.595	5.85%
Butter	10.000	lb	4.536		10.238	9.08%
Cheese	10.000	lb	4.536	12.50%	5.341	4.74%
Sub-total				37.50%	46.124	40.89%
Industrial						
Charcoal	4.250	bu			3.813	3.38%
Candles	2.750	lb			3.475	3.08%
Lamp Oil	0.500	pt		7.50%	0.865	0.77%
Canvas/Linen	0.670	yd			2.757	2.44%
Shirting	0.500	yd			2.718	2.41%
Coarse Woollens	0.330	yd		12.50%	7.023	6.23%
Sub-total				20.00%	20.651	18.31%
TOTAL				100.00%	112.801	100.00%

Abbreviations:

no. number

bu bushels = 36.36872 dm³

lb pounds avoirdupois = 16 ounces = 453.59237 grams

pt pint = 20 fluid ounces = 0.568261 dm³

yd yard = 36 inches = 0.9144 metre

Sources:

Archives of the British Library of Political and Economic Science, the Phelps Brown Papers Collection: boxes Ia:324, J.IV.2a;

These archival boxes contain Phelps Brown's original hand-written working papers, with prices for individual commodities contained in the Phelps Brown and Hopkins 'basket of consumables' price index, which they had presented in:

E. H. Phelps Brown and Sheila V. Hopkins, 'Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates', *Economica*, 23:92 (November 1956), 296-314: reprinted in E.M. Carus-Wilson, ed., *Essays in Economic History*, 3 vols. (London, 1954-62), II, 168-78, 179-96, and in E.H. Phelps Brown and Sheila V. Hopkins, *A Perspective of Wages and Prices* (London, 1981), pp. 13-39 (with price indexes not in the original).

Apart from correcting hundreds of computational errors in their original series, I constructed an entirely new index based on actual prices rather than their index numbers. Using the data in their worksheets, for each commodity, I first calculated the annual prices for all the commodities in the basket. Then using their commodity weights, I calculated the sum value of those commodities, to calculate the annual value of the basket. I then constructed the price index, with their base, 1451-75 = 100, from the values of the basket for each year in that 25-year base period.

While the original PB&H commodity basket consisted of fixed commodity weights throughout the entire series – so that, for example, grain prices always account for 20 percent of the total weight in the basket, the commodity weights, in my revised version, change with changes in relative prices. Thus, when grain prices rise more than do other commodity prices, the weight given to grain prices correspondingly rises, while the weights for other commodity prices correspondingly fall. The commodity weights for the basket are thus fixed only for the base period: 1451 - 75 = 100.

Table 7. Exports of English Wools (in sacks) and Woollen Broadcloths (pieces) in quinquennial means, 1331-35 to 1446-50

Year Michaelmas	Denizen Wool Exports	Per cent of Total	Alien Wool Exports	Per cent of Total	Total Sacks	Equivalent Broadcloths	Broadcloth Exports	Total as Equivalent Broadcloths
1331-35	24,633.000	72.97%	9,012.600	27.03%	33,645.600	145,797.490		145,797.490
1336-40	13,180.000	69.44%	7,344.800	30.56%	20,524.800	88,940.730		88,940.730
1341-45	10,565.510	58.09%	7,510.070	41.91%	18,075.580	78,327.430		78,327.430
1346-50					27,183.130	117,793.450	2,556.000	120,349.120
1351-55	10,169.400	34.39%	20,581.000	65.61%	30,750.400	133,251.630	1,921.000	135,172.830
1356-60					32,666.400	141,554.290	9,061.000	150,615.290
1361-65	20,899.950	69.03%	9,229.250	30.97%	30,129.200	130,559.770	11,717.000	142,276.970
1366-70	16,345.600	56.81%	10,106.200	43.19%	26,451.800	114,624.380	14,527.000	129,151.580
1371-75	16,712.020	64.39%	9,155.780	35.61%	25,867.800	112,093.710	12,211.000	124,305.110
1376-80	16,898.000	82.67%	3,572.200	17.33%	20,470.200	88,704.130	13,643.000	102,346.730
1381-85	13,886.800	78.97%	3,630.600	21.03%	17,517.400	75,908.670	22,242.000	98,150.670
1386-90	15,574.200	80.07%	3,737.800	19.93%	19,312.000	83,685.270	25,610.000	109,295.270
1391-95	13,593.200	72.00%	4,920.600	28.00%	18,513.800	80,226.400	39,525.000	119,751.600
1396-1400	14,515.800	86.15%	2,373.800	13.85%	16,889.600	73,188.210	38,775.000	111,963.310
1401-05	11,803.400	91.57%	1,100.800	8.43%	12,904.200	55,918.160	34,570.000	90,487.760
1406-10	13,392.800	89.41%	1,575.400	10.59%	14,968.200	64,862.150	31,746.000	96,608.350
1411-15	12,633.200	92.72%	960.000	7.28%	13,593.200	58,903.820	27,183.000	86,087.220
1416-20	13,355.400	92.98%	1,009.600	7.02%	14,365.000	62,248.290	27,977.000	90,225.490
1421-25	13,363.600	93.77%	881.600	6.23%	14,245.200	61,729.150	40,275.000	102,003.750
1426-30	12,429.000	92.60%	929.600	7.40%	13,358.600	57,887.220	40,406.000	98,292.820
1431-35	8,679.400	85.18%	705.200	14.82%	9,384.600	40,666.570	40,027.000	80,693.970
1436-40	4,197.800	41.65%	1,181.000	58.35%	5,378.800	23,308.120	47,072.000	70,380.120
1441-45	6,502.200	69.96%	1,527.200	30.04%	8,029.400	34,794.040	56,456.000	91,249.840
1446-50	9,176.800	88.50%	588.400	11.50%	9,765.200	42,315.830	45,847.000	88,162.630

Sources:

a. one woolsack = 26 stones = 364.00 lb. = 165.108 kg. b. one woolsack = 4.333 broadcloths of assize (24 by 1.75 yards)

Sources:

E.M. Carus Wilson and Olive Coleman, eds., *England's Export Trade, 1275-1547* (Oxford, 1963), pp. 36-119; A.R. Bridbury, *Medieval English Clothmaking: An Economic Survey* (London, 1982), Appendix F, pp. 118-22

**Table 8. Exports of English Woolsacks and Broadcloths and
Production Indices for the Woollen Draperies of the
Southern Low Countries, 1331-35 to 1446-50
in quinquennial means**

Years	English Wool Exports in Sacks	English Broadcloth Exports in pieces	Total English Wool & Cloth Exports as Cloths	Ghent Drapery Farms A in £ groot Flemish	Ghent Drapery Farms B in £ groot Flemish	Ypres Drapery Farms in £ groot Flemish	Ypres: No of Stalls rented in Lakenhalle	Mechelen Drapery Farms in £ oude groot	Leuven: Drapery Farms £ oude groot
1331-35	33,645.600		145,797.490	108.485	150.283			1,563.710	
1336-40	20,524.800		88,940.730	87.913	123.660			1,045.045	
1341-45	18,075.580		78,327.430	84.015	125.070			782.313	
1346-50	27,183.130	2,555.670	120,349.120	67.240	109.378			506.862	250.292
1351-55	30,750.400	1,921.200	135,172.830	68.875	114.505			707.914	240.809
1356-60	32,666.400	9,061.000	150,615.290	61.720	112.785			467.723	351.436
1361-65	30,129.200	11,717.200	142,276.970	55.778	96.825			496.240	709.398
1366-70	26,451.800	14,527.200	129,151.580	34.590	67.425			597.661	803.344
1371-75	25,867.800	12,211.400	124,305.110	22.800	47.721			540.698	525.557
1376-80	20,470.200	13,642.600	102,346.730	19.355	39.311			471.236	564.943
1381-85	17,517.400	22,242.000	98,150.670	14.402	22.421			397.290	394.331
1386-90	19,312.000	25,610.000	109,295.270	11.743	23.550			353.349	259.114
1391-95	18,513.800	39,525.200	119,751.600	missing	missing			297.670	224.730
1396-1400	16,889.600	38,775.100	111,963.310	missing	missing			300.804	169.338
1401-05	12,904.200	34,569.600	90,487.760	5.885	15.433			270.285	135.072
1406-10	14,968.200	31,746.200	96,608.350	7.654	16.030	183.192	407.000	272.011	170.875
1411-15	13,593.200	27,183.400	86,087.220	7.309	15.498	266.902	426.000	275.450	143.177
1416-20	14,365.000	27,977.200	90,225.490	8.253	17.782	266.912	489.300	276.334	81.769
1421-25	14,245.200	40,274.600	102,003.750	8.623	20.619	265.633	410.000	357.119	58.932
1426-30	13,358.600	40,405.600	98,292.820	9.331	23.648	249.817	356.600	352.707	

Years	English Wool Exports in Sacks	English Broadcloth Exports in pieces	Total English Wool & Cloth Exports as Cloths	Ghent Drapery Farms A in £ groot Flemish	Ghent Drapery Farms B in £ groot Flemish	Ypres Drapery Farms in £ groot Flemish	Ypres: No of Stalls rented in Lakenhalle	Mechelen Drapery Farms in £ oude groot	Leuven: Drapery Farms £ oude groot
1431-35	9,384.600	40,027.400	80,693.970	7.267	22.314	235.327	319.400	220.532	
1436-40	5,378.800	47,072.000	70,380.120	4.267	14.783	156.022	192.600	186.976	
1441-45	8,029.400	56,455.800	91,249.840	4.418	14.431	176.453	182.400	190.881	
1446-50	9,765.200	45,846.800	88,162.630	4.773	14.512	177.450	152.200	162.950	

Sources:

1 wool sack = 26 stones = 364 lb = 165.108 kg = 4.333 woollen broadcloths of assize

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Ghent A: Total drapery excise farms; Ghent B: Excises for 'Ramen en Nieuwe Huusgeld' only; all from: Stadsarchief Gent, Stadsrekeningen, Reeks 400:4-43, 1335-1520; Algemeen Rijksarchief België, Rekenkamer, reg. nos. 38,635-72;

Ypres: Algemeen Rijksarchief België, Rekenkamer, reg. nos. 38,636-722.

Mechelen: Stadsarchief Mechelen, Stadsrekeningen, 1316-1550, Series I: nos. 3-225; Algemeen Rijksarchief, Rekenkamer, reg. nos. 41,219-85;

Leuven: Stadsarchief Leuven, Stadsrekeningen, 1345-1500, nos. 4986-5124;

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