

The Condition of the Working-Class in England, 1200-2000: Magna Carta to Tony Blair¹

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The paper estimates of both the real wages of male building craftsmen and laborers in England for 1200-2000, and the wage premium associated with skills. These estimates have implications for both the causes and the consequences of the Industrial Revolution. They reveal, for example, that as a result of the Industrial Revolution by the 1830s, English workers were better off than in any time in recorded history. But they also imply that modern economic growth, fuelled by productivity advance began long before 1760, and indeed before the institutional reforms of the Glorious Revolution of 1688. Finally these estimates suggest that human capital interpretations of the Industrial Revolution, formalized by Becker et al. (1990), Galor and Weil (2000) and Lucas (2002), as presently constructed conflict with the empirical record. Human capital accumulation in England began in an era when the market rewards to skill acquisition were at historically low levels.

Introduction

Pre-industrial England has a uniquely well documented wage and price history. The stability of English institutions after 1066, and the early development of monetary exchange, allowed a large number of documents with wages and prices to survive in the records of churches, monasteries, colleges, craft guilds, charities, and government. This paper fashions a large collection of these records of wages and prices – 29,000 quotes of day wages, 82,000

¹ The author owes an enormous debt to the many transcribers and compilers of English wage data, some of whom are listed below in footnote 2. Without being able to use these printed sources as a shortcut to the wage data this paper would not have been possible. Thus of the 28,981 observations on wages underlying this paper only 3,298 were collected directly from manuscripts. The rest were collected from printed transcripts, or from calculated wage averages.

quotes of the prices of 37 commodities, and 20,000 quotes of house rents - into an estimate of English building workers' real day wages from 1200 to 2000.²

Figure 1 shows the new estimate of the real day wage of building workers, for a notional 10 hour day, averaging craftsmen and laborers, from 1200 to 2000. To allow for differences in hours the day has been assumed to be 10 hours before 1869, and thereafter hourly wages have been adjusted to represent a 10 hour day.³ The picture shows clearly the long Malthusian interval before 1800 when on average real wages showed little secular increase. Real wages in 1200-49 were 74% of those in 1750-99 at the eve of the Industrial Revolution, a growth rate over this interval of a mere 0.05% per year. From 1800 to 2000 in contrast hourly real wages grew tenfold, at a rate of 1.2% per year.

Below I detail how the new series was constructed. Then I consider its implications for our understanding of the Industrial Revolution. The new series implies a very different story about the Industrial Revolution than is conventionally told. The only other long run series for pre-industrial English wages, that of E. H. Phelps-Brown and Sheila Hopkins for building workers in southern England 1264-1954, has been widely used to measure long run living standards. This series implied that there had been no growth in the total factor productivity of the English economy between 1260 and 1760, a period of 500 years, and that the Industrial Revolution of 1760 was a sudden break from a completely stagnant economy. Wages on the

A particular debt is owed to John Munro for generously sharing his coded data from the Beveridge Archive on the medieval Winchester Estates.

² These documents have been the basis of many studies of pre-industrial wages and prices. Most notable are those of James E. Thorold Rogers, Elizabeth Gilboy, William Beveridge, , Henry Phelps-Brown and Sheila Hopkins, Peter Bowden, Bernard Eccleston, David Farmer, Donald Woodward, Steve Rappaport, Jeremy Boulton, and Charles Feinstein. Rogers (1866, 1888a, 1888b, 1902), Gilboy (1934), Beveridge (1936, 1939), Phelps Brown and Hopkins (1962a, 1962b), Bowden (1967, 1985), Eccleston (1976), Farmer (1988, 1991), Rappaport (1989), Woodward (1995), Boulton (1996, 2000), Feinstein (2000).

³ Evidence on the length of the day before 1869 is given below.

PBH series were at an extraordinarily high level, even compared to the 1860s, for many of the years before 1800. Real wages on their series in some of the decades after the onset of the Black Death in 1349 were not again equaled until the 1880s. Even in the years before the Black Death, when population levels were high, real wages were little below those of the 1840s, and were well above the level attained from 1600 to 1800. Friedrich Engels was seemingly correct when he claimed in 1844 that the pre-industrial worker was far better off than his successors of the factories of the 1840s, “So the workers vegetated throughout a passably comfortable existence, leading a righteous and peaceful life in all piety and probity; and their material position was far better than that of their successors” (Engels, 1892, p. ---).

In the Malthusian era we can roughly approximate the total factor productivity of the economy by comparing real wages to the level of population, as is done for the PBH series for carpenters in figure 2.⁴ If there was a constant level of total factor productivity in pre-industrial England, then there will be an inverse relationship between wages and population, other things being equal (including trade possibilities and taxation). At a given level of population, the higher the productivity of the economy the higher will be the level of real wages. Figure 2 suggests complete stasis of aggregate productivity between 1280 and 1760, with some surprising declines in productivity in between. The seventeenth century advances in intellectual understanding of the natural world – Bacon, Newton, Hooke, Boyle and their ilk - apparently had little effect on the productivity of the economy before 1760.

In contrast the new series suggests that pre-industrial wages looked very different than PBH portrayed. In particular real wages before 1600 are much lower on the new series, in some

⁴ Loose because the wage only indicates the marginal productivity of labor. So changes in the capital stock could also change wages. And a 10% increase in wages at a given level of population would only indicate a 10% increase in the total factor productivity of the economy in special circumstances.

decades being almost 50% less than in the PBH series. Now by the 1830s real wages attain a level as great as in any decade before in recorded English history. Figure 3 shows the two series for comparison for the years before 1869.

The revised series also implies a very different image of economic growth in England before the Industrial Revolution. Figure 4 show real wages versus population with the new real wage series. Now the efficiency of the economy shows the first signs of exceeding medieval levels in the 1650s, and there is a significant period of growth from the 1640s to the 1730s, followed by a seeming pause in growth before the final onset of the Industrial Revolution circa 1800. In the first growth interval from 1640 to 1730 real wages increase by 40%, despite population growing slightly.

Calculating Nominal Day Wages 1200-1869

Since Phelps Brown and Hopkins calculated their series for southern England a wealth of new data on prices and wages has become available.⁵ Unlike the PBH series which covered only the south of England, the new national wage series is calculated as an average of five regional series: London, the south east, the south west, the midlands and the north.

Wages for craftsmen in the new series are calculated from a regression of the following form for each region,

⁵ Phelps-Brown and Hopkins drew their wage material before 1700 exclusively from Thorold Rogers (1866, 1882, 1902). For the eighteenth century they used wages in Oxford for the first 30 years to link to the earlier Thorold Rogers material, then switched to wages in Maidstone in Kent from 1730 to 1796 all derived from Gilboy (Gilboy, 1934). From 1796 to the 1890s they used wages in London from Bowley (Bowley, 1901). The actual wages used in 1796 to 1895 were 80% of London wages to link these with those of Maidstone in 1796.

$$\ln(W_{ijt}) = \alpha_i + \beta_1 DMASTER + \beta_2 DHELP_0 + \beta_3 DWINTER + \beta_4 DSUMMER + \sum_j \gamma_j CRAFT_j + \sum_t \phi_t DEC_t + \varepsilon_{ijt}$$

where α_i is a fixed effect for each location i , $DMASTER$ is an indicator variable for a master craftsman, $DHELP_0$ is an indicator variable for a joint wage for a craftsman and assistant in the years before 1350, $DWINTER$ is an indicator variable for a wage for the months of November to March, $DSUMMER$ is an indicator variable for the months of May to September, $CRAFT_j$ are a set of 25 indicator variables for different crafts such as bricklayer and mason (the omitted category is carpenter), and DEC_t are a set of indicator variable for each decade from 1210 on.

Wages for laborers and assistants are calculated from a similar regression of the form,

$$\ln(W_{ijt}) = \alpha_i + \beta_1 DWINTER + \beta_2 DSUMMER + \sum_j \gamma_j CRAFT_j + \sum_t \phi_t DEC_t + \varepsilon_{ijt}$$

The national wage series was calculated as a weighted average of the regional series with the weights being 0.1 for London, and 0.225 for each of the other four regions. London consistently shows a wage premium over the other regions. The relative levels of day wages changed across the other regions over time, but by relatively modest amounts.

Day Wages, 1860-9 to 2000

The earlier series for nominal day wages was extended to 2000 using a variety of sources. After the 1860s hourly wages are available so the day wage was calculated on the basis of a standard 10 hour day for comparability with earlier wages. The series used were: hourly wages for laborers, carpenters and bricklayers in large towns in the Great Britain from the Department of Employment, New Earnings Survey, 1970-2000, hourly wages in large towns in Great Britain, 1925-1938 and 1946-1974 for craftsmen and laborers from the Department of Employment

Gazette, and hourly wages of bricklayers and laborers in London, Birmingham, Leeds, Liverpool and Manchester from the Department of Employment, British Labour Statistics.

The Length of the Working Day

After the 1860s the wages are quoted by the hour and the day wage was calculated for a hypothetical 10 hour day. Before the 1860s most wages are quoted by the day and the issue arises of the average length of the work day. There is a period though, between 1750 and 1869, when labor was sometimes charged for by both the day and the hour. This allows us to calculate the implied number of hours per day by dividing the day wage by the hourly wage. Table 1 gives the implied length of the work day for building workers in towns where wages were quoted in both ways using this method. Looking just at the unweighted average implied hours from such quotes we see a decline in implied work hours from 12 circa 1750-9 to 10 by 1860-9, with most of the decline being accomplished by 1810-9. The last column of table 1 estimates hours using fixed effects for locations. This implies substantially the same result. Seemingly in the building trades sometime between 1790 and 1810 there was a decline in the length of the notional work day from 12 hours to 10. Since this evidence is relatively limited for the years before 1810 when the substantial decline occurs, however, I have chosen to assume just a standard 10 hour day for all day wage quotes for the years before 1869, without making any adjustment for potentially longer work days before 1810.

The Cost of Living, 1200-1869

The cost of living index is formed as a geometric index of the prices of each component, with expenditure shares used as weights. It thus assumes constant shares of expenditure on each

$$P_t = \prod_i P_{it}^{a_i^6}$$

item as relative prices change. That is, if p_{it} is the price index for each commodity i in year t , and α_i is the expenditure share of commodity i , then the overall price level in each year, p_t is calculated as,

The weights for expenditures are derived mainly from budget studies of manual workers expenditures collected in the years 1786-1854, as summarized by Sarah Horrell (Horrell (1996)). The Horrell average budget shares, together with earlier evidence for London manual workers from Vanderlint (1734), are given in table 3. For the share of housing costs in expenditure I can supplement this evidence from even earlier for cases where I know the renter of a house is a building worker. In 22 cases before 1740 the average rental payment as a share of estimated annual income (assuming a 300 day work year) was 5.9%. Since, as we shall see real living standards do not vary by more than about 2:1 over the years 1200-1869, I use the same set of weights for the major categories of expenditure throughout these years. There are at maximum 38 sub-items in the cost of living index, including such exotica as stockings and pewter plates.

For bread and flour, the staple article that formed the largest single share of workers' expenditures, I use the price of wheat and other inputs in making bread rather than bread prices themselves. Both bread and flour had very different qualities that are hard to control for over long time intervals, and the cost of wheat was a very large share of the cost of flour and bread. Further the available bread prices until well into the nineteenth century were those for bread in London, whose price was regulated by statute until 1815. Using wheat avoids all these quality issues, and a breakdown of the costs of bread baked for the Navy in 1767 given by Beveridge suggests that the price of flour and bread should move closely in line with that of wheat, since wheat constituted 92% of the costs of making bread, and would be an even larger share of the costs of flour. Table 4 shows the components of bread costs reported by Beveridge.

Over time the ratio of the assize price of bread in London to the cost of wheat changes markedly. Thus the ratio of the price of 4 lbs. of bread in London in pence to the price of a bushel of wheat in England in shillings falls from an average of 1.36 in 1670-1769 to 1.14 in the years 1770-1799, but then bounces back up to 1.32 in the years 1820-69 when the assize was abolished.⁶ This would not be possible if the bread was of constant quality. The quality of bread would vary according to what fraction of the wheat was incorporated in the flour. Thus it has seemed more prudent to use the price of wheat as a proxy for bread and flour, and include an increased allowance for salt, fuel, and services in the cost of living index to cover the manufacturing cost. The costs of barley meal and oatmeal were similarly proxied by the prices of barley and oats. Together these basic grains and potatoes formed 31% of the cost of living index.

Meat prices by the pound can be found only after 1540. Before this meat was typically quoted by the live animal, the carcass, the quarter carcass, or such cuts as the leg in available sources, not by weight. Phelps Brown and Hopkins thus use live animal prices as a proxy for meat prices in the years before the 1580s. However, this assumes that in the long interval 1260-1600 there was no change in average animal sizes. This is a dangerous assumption given other evidence that medieval animals were much smaller than those of the nineteenth century, and given that after 1540 the prices of live animals moves differently from that of meat sold by the pound.⁷ So for the years before 1540 I approximate meat prices using the one animal product

⁶ Webb and Webb (1904).

⁷ Although PBH list all the series they use it is unclear how some would be derived. For example, to estimate medieval meat prices they use the price of whole pigs from 1264 to 1460 and the price of whole sheep from 1265 to 1582, linked somehow with a series on prices of beef and pork by the pound which start respectively in 1584 and 1602. How a proper linkage was achieved is unclear. Also there is evidence that sheep at least were much smaller in the medieval period than they were in later years, and this will cause early meat prices to seem very low. See Clark (1991).

that was sold by the pound, suet or tallow, and also using the price of fish (which being caught in the wild can be assumed to be of uniform size over time).

Sugar is calculated based on the price of sugar alone in later years, but earlier on the prices of both sugar and honey. As can be seen in table 6 sugar is extremely expensive in the early years relative to other goods. For fuel I use the price of faggots, turf and charcoal only until the 1450s, and thereafter an average of faggot, turf, charcoal and coal prices. After 1830 I use the price of coal alone.⁸ For light and soap I use the prices of tallow candles from 1280-1810, and of tallow the main input in making tallow candles, for the earlier years. Towards the end of the period gas lighting was spreading in towns. Thus for light I use a mixture of gas light prices and candle prices for the years after 1810.

A major innovation in the cost of living series in this paper is the inclusion of housing rental costs, which I estimate constituted 8% of the expenditure of workers. Rents controlling for housing quality are estimated for 1280-1869 using the methods discussed in Clark (2002). For the years before 1500 there is only one source of housing rents, a detailed study of medieval Winchester by Derek Keane (Keane (1985)). After this the range of sources is greater. For London I have properties leased by such London Guild Companies as the Armorers and Braziers, Carpenters, Clothworkers, and Grocers. Outside London I have rents on a substantial set of leases exists for houses owned by the Almshouse in Saffron Waldon, Essex before 1700. For the 16th century churches sometimes had property for their support that they rented, where the rents are recorded in printed churchwardens accounts. This provided some rent information for towns and villages such as Ashburton, Betresden, Cambridge, Tewkesbury and York.

To calculate the whole cost of lodging I combine the estimates of house rents with an estimate of the cost of pewter plates and vessels before 1790, and of wooden plates 1540-1650.

The cost of living series used in this paper also has much improved estimates of clothing and bedding costs. These are estimated to constitute about 12% of total expenditure. Much new data for the years 1560-1869 was collected from the records of clothing charities administered by London Guilds or parishes. The Clothworkers' Company in particular supplied a wealth of information on linen, cloth, stocking and shoe prices over these years. For the later years the clothing provided to the inhabitants of Wyatt's Almshouse administered by the Carpenters' Company gave a continuous series of prices.

The decadal price levels for the major commodity groups used to form the cost of living index are given in table 5. Figure 7 shows the PBH index compared to the resulting index, where in both cases the average level of the indices in 1860-9 has been set to 100. The further back we go the lower the relative estimated cost of living of PBH compared to this paper. For the years before 1500 PBH estimated the cost of living as typically about 60% of the level estimated here. This is a remarkable difference, and stems from a number of sources. Table 6 shows the ratio of prices in 1860-9 compared to 1451-75 on the PBH index compared to this new index.

The much smaller rise of living costs on the new series is mainly caused by the very different rates of increase of prices on the new series compared to the PBH commodity series. In almost all cases my price series rise less than theirs. Most importantly they assign 22.5% of the weight in their index to "drink" (meaning beer), which they measure before 1660 using malt and hops prices. From 1450 to 1860 their drink series shows an 18 fold increase in prices. In my series drink is a mix of cider, beer, and tea. It is only 8% of expenditures. And it rises only fourfold between 1450 and 1860. For beer prices I am able to get actual beer prices by the gallon back to the middle ages using the Beveridge Winchester extracts, churchwardens' accounts, and

the records of the Carpenters and other London companies. The rise of beer prices is offset by the introduction of tea and the decline in tea prices.

Services, such as schooling, doctors, and barbers constitute 3% of expenditures. Their cost is approximated by the average wage of building workers.

Table 5 shows the estimated day wage for skilled and unskilled building workers, the cost of living, and real wage of skilled and unskilled workers by decade from 1200-9 to 1990-9. For real wages and the cost of living 1860-9 is set to 100. Several things lend plausibility to the new real wage series, compared to PBH. The lowest level of real wages on the new series occurs in the 1310s, the decade that witnessed the last major famine in England in the years 1316-7. On the old series real wages from 1590-9 to 1660-9 and in 1800-9 fell below the decade of the 1310s, yet without any sign in either of these periods of hunger-related deaths. For an economy without much external trade the level of urbanization is usually a good indicator of the level of income per capita. Higher income consumers spend proportionately more on manufactured items produced in urban areas. De Vries suggests that about 13% of the population in England lived in towns of more than 10,000 people in 1700, while the comparable proportion in 1300 would have been 3% or less.⁹ Yet on the PBH series real wages are the same in both periods.

The Cost of Living, 1870-2000

For the years 1870-1990 the cost of living index of Feinstein (1995) was used. Thereafter the retail price index of British National Statistics (<http://www.statistics.gov.uk/rpi>) was employed.

The Wage Series and the Industrial Revolution

What do these wage series imply about the Industrial Revolution? We see already in figure 4 one surprising fact, which is that when we compare wages to population the first signs of the escape from the Malthusian stagnation in England appear in the decade of the 1640s, which coincidentally was also the decade of the Civil War between King and Parliament. The late seventeenth century saw a period of, by pre-industrial standards, substantial economic growth with about a 40% gain in real wages despite modest population gains. The Industrial Revolution stems further back than has been generally appreciated, and modern growth seems to predate many of the institutional reforms that have been associated with the later Industrial Revolution, such as the Glorious Revolution of 1688-9 when the modern constitutional monarchy was created.

Recent theories of the Industrial Revolution have focused on the acquisition of human capital and the growth externalities this creates (Becker et al. (1990), Galor and Weil (2000), Lucas (2002)). The vision has been of a pre-industrial equilibrium where both incomes and the private returns to skills were low. This induced parents to prefer to produce as many as children as possible, but invest very little in the human capital of their offspring. Short term gains in income in this pre-industrial equilibrium resulted only in population growth, which pushed income back to the subsistence level. The Industrial Revolution represented a break from the Malthusian Equilibrium associated with families switching their behavior towards fewer births but greater investment in each child. The cause of this break differs with the specific theory, but there are really only two things that can signal families to change their childbearing and child

⁹ de Vries (1984), pp. 39-43

rearing behavior towards modern norms. The first is a higher level of real incomes, which determines the value of the opportunity cost of the parents' time. The second a higher implied private return to human capital, which determines the returns to investing in human capital.

England in the period before the Industrial Revolution certainly witnessed signs of a greatly increased stock of human capital. Figure 6, for example, shows estimates of the proportion of men and women who had at least basic literacy by decade in England. This rose substantially in the years preceding the Industrial Revolution. Literacy was also associated strongly with occupations and wealth in the pre-industrial period. Table 7, for example, shows for will writers in the early seventeenth century the fraction presumed illiterate (because they signed the will with an "X"), and the average value of the bequests by occupation. Those in skilled occupations were more literate than those in unskilled occupations, and had more assets at time of death.

But why did literacy increase in England in the years preceding the Industrial Revolution? The real wage series illustrated in figure 3 shows that the gains in human capital evident in England in the seventeenth century were occurring in an environment where real wages in the early part of that century were in fact low for the Malthusian era. Real wages in the 15th century were about 60% higher than in the 17th century, because of the very small population of that era.

The wage premium for skills similarly does not point to the seventeenth century as a period when skill acquisition was being better rewarded in the marketplace. Skilled building workers typically acquired those skills by apprenticing themselves to a craftsman, with the traditional apprenticeship lasting up to 7 years. Parents in at least some cases had to pay to secure apprenticeships for their children.

Figure 7 shows the earnings of a craftsman relative to that of an unskilled worker by decade from the 1250s on. The secular trend in England has been towards a declining premium for skills. In the earliest years 1250-1319 the wage premium of craftsmen averaged 92%. Then the premium declined very substantially to about 33% for the three hundred years 1400 to 1700. This was a period where we see substantial increases in literacy rates. The years 1700 to 1900 saw a modestly higher skill premium of 44%, still well below the medieval level. Yet in this interval literacy increased from about 50% for males to near 100%, and from about 20% for females to near 100%.

The only wage these market wage rates would be misleading about the incentives to invest in training would be if the reason for the high skill premiums in the early years was restriction of access to skilled crafts through guild limitations on apprenticeships. In major urban centers such as London from at least medieval times crafts were organized through guilds, which required apprenticeships for access to the skilled trades. If the crafts could successfully limit this access then they could drive up the relative wage of the skilled workers. This would result in the premium existing craftsmen were able to demand for apprenticeships rising, so that higher skill premiums in this case would indicate no greater incentive to pursue training for children.

But all the indications are that guild control of entry to skilled crafts in centers like London was weaker in the years before 1330 when skill premiums were high than in subsequent years when premiums were low. One way to limit entry to the skilled crafts was to increase the required apprenticeship term. In the years 1309-12 in London the modal term of registered guild apprenticeships was 7 years: 82% served an apprenticeship of 8 years or less (with the modal apprentice beginning the apprenticeship at age 14). By the early fifteenth century, when the premium for skills in the London building trades had fallen markedly, apprenticeships had

lengthened: only 41% of registered apprenticeships were for 8 years or less (Hanawalt (1993), p. 135).

Guild regulation of crafts was much stronger in cities than in the countryside. Thus one check on whether the skill premium trends we see reflect restrictions on access to skilled trades is to look at what happens to the skill premium for workers hired on farms, rural estates, and small towns. What we find here is exactly the same pattern to the skill premium from 1250 to 1869, with the one difference that in the countryside the skill premium tended to be a bit larger. Craftsmen in the countryside got an average wage premium over unskilled laborers in the years before 1330 of 116% (compared to 88% for the whole sample in these years). By 1700-1869 this premium averaged only 50% (compared to 43% for the whole sample). Thus the secular decline in skill premiums must reflect underlying trends in the demand for and supply of skills in the building industry.

The rise in investment in human capital by parents, as evidenced by rising literacy rates in the seventeenth and eighteenth century thus must have a cause outside the obvious economic triggers of increased real wages or an increased premium paid for skills.

Conclusion

The real wage series developed above provide interesting insights into the English economy in the Malthusian and Industrial Revolution eras. If we compare real wages with population we see from the 1280s to the 1600s a period of more than 300 years without any signs of economic growth. But the Industrial Revolution of the 1760s and later is preceded by a period of modest economic growth starting in the 1600s. Thus the Industrial Revolution is not an

abrupt break from a stagnant economy, but an acceleration of a process of modern growth that began about 150 years earlier.

We also see in the premium paid for skills that while increased investment in human capital may lie at the heart of the Industrial Revolution, the causes of this increased investment, evident in England as early as 1600 are mysterious. The market signal to parents, in the form of the level of real wages and the market premium for skills, does not explain the increased investment in human skills evident after 1600.

Appendix 1: Sources on Nominal Wages

The 29,000 wage quotes were drawn from a variety of sources, either directly from the original manuscripts, or when possible from transcripts of manuscripts or summaries of their contents. Table 8 summarizes the major locations yielding wage data, listed in order of the number of years between 1200 and 1869 which are covered. The variety of sources used included manorial account rolls, monasteries, records of Oxford and Cambridge colleges, charitable foundations, churchwardens' accounts, town government records, London guild corporation records, payments by county governments for the maintenance of goals, courts and bridges, and private accounts.

Major Secondary Sources

Rogers (1866, 1888a, 1888b, 1902), gives wages from Oxford and Cambridge colleges from 1300 to 1792, and wages on their manorial estates for the earlier years. All Roger's wage material was used except where a more recent source duplicated it. Gilboy (1934) gives wages approved by Quarter Sessions for repairs to county facilities in the years 1700 to 1800 in a variety of counties. Eccleston (1976) gives wages paid on estates for building workers for five Midland counties for the years 1750-1835. Rappaport (1989) and Boulton (1996, 2000) summarize wages to building workers paid by the London Livery Companies from 1490 to 1700. Woodward (1995) reports annual wage rates for major northern towns for building workers from 1450 to 1750 derived from Town Chamberlains' accounts and vouchers supplemented by Churchwardens' records. These sources I have supplemented with a set of 26 printed transcriptions of churchwarden's and chamberlains' accounts from around the country, detailed below, mainly for the sixteenth century.

Archival Sources

Beveridge Papers, Robbins Library

The Beveridge Wage and Price History extracted wage materials from a whole variety of archival sources. First there were medieval manorial records: eight Winchester manors, Hinderclay and Redgrave in Suffolk, Westminster Abbey manors, and some Battle Abbey material. Then there were the records of religious and charitable institutions: Westminster Abbey, Winchester College, St Bartholomew's Hospital in Sandwich, Kent, Eton College, Greenwich Hospital. Also town corporation accounts were utilized in the cases of Exeter, Canterbury, and Nottingham. Finally Beveridge extracted central government records from the Office of Royal Works.

Bristol Record Office: Bristol Town Chamberlain's Vouchers, 1750-1855.

Cheshire Record Office: Town Chamberlain's Vouchers, 1766-1836, TAV/3/51-83.

Cumbria Record Office: Carlisle Town Chamberlain's Vouchers, 1748-1834, CA/4/11, Cumberland Quarter Session Vouchers, 1851-4, CQF/5/117.

Dorset Record Office: Lardner MSS. 1702-1749. PE/WCH/MI/7.

Devon Record Office: Exeter Chamberlain's Vouchers. 1760-1855.

Essex Record Office: Quarter Session Vouchers, 1759-1869. Q/FAc/5/1, Q/FAc/6/2/1-59.

Hull City Record Office: Chamberlains' Vouchers, 1750-1798, 1828, 1833. BFR/6/--. Charterhouse Charity, 1850-1, 1860-1. WT/6/--.

Leicester Record Office: Quarter Session Vouchers, 1778-1869. QS/112/1-426.

Stafford Record Office: ----- MS, 1808-1867. D 240/E/F/4/1-27.

Surrey Record Office: Quarter Session Vouchers, 1750-1851, QS2/6. Guildford Borough Vouchers, BR/OC/6/9/1-60.

Appendix 2: Sources on the Cost of Living

Price quotes were located in the same way as the wage data, either directly from the original manuscripts, or when possible from transcripts of manuscripts or summaries of their contents.

Secondary Sources

Rogers (1866, 1888a, 1888b, 1902), gives prices from Oxford and Cambridge colleges from 1300 to 1792, and prices on their manorial estates for the earlier years. All Roger's price material was used except where a more recent source duplicated it. Beveridge (1939) gives a great variety of carefully constructed price series for the years 1500 to 1830 drawn from Westminster Abbey, Winchester College, Saint Bartholomew's Hospital in Sandwich, Kent, Eton College, Chelsea Hospital, and Greenwich Hospital. The Board of Trade (1902) gives prices for the nineteenth century drawn from a variety of institutions such as Bethlem Hospital and Greenwich Hospital. Information for the years 1750 to 1869 is also drawn from Afton and Turner (2000), John (1989), and Gayer, Rostow and Schwartz (1953). For earlier years I get London food prices from Ainsworth (1939), Marsh (1913), Boulton (1996, 2000), and Rappaport (1989).

Archival Sources:

Beveridge Papers, Robbins Library

The Beveridge Wage and Price History again extracted price materials from a whole variety of archival sources for the earlier years which were not published in Beveridge (1939): prices from eight Winchester manors, Hinderclay and Redgrave in Suffolk, the estates of Battle Abbey, Canterbury Cathedral Priory, Croyland Abbey, Durham Priory, Norwich Cathedral Priory, and Westminster Abbey,. Examples for the later years include wheat prices from Hull 1708-1798 (Box I14), Norwich, 1552-1601 (Box G4), York 1584-1763 (Box I15), and barley and oats prices, Hull 1708-1791 (Box I14).

Clothworkers' Hall Warden's Accounts 1580-1869. Records of purchases of clothing, shoes, and of the rental of company owned housing. Court Minutes, 1580-1690. Lease Books 1770-1800. Records of house leases.

Essex Record Office Saffron Walden leases.

Guildhall Library Brewers' Company. Pratt's Almshouse, Aldenham, Hertfordshire. Dame Alice Owen's Almshouse, Islington. 1600-1869. 5491/1-3. 5492. 5478/1-3. 5473/1-5. Clothing, firewood, coals. Carpenters' Company, Warden's Accounts, 1680-1869. Clothing.

Printed Primary Sources of Wage and Price Quotes

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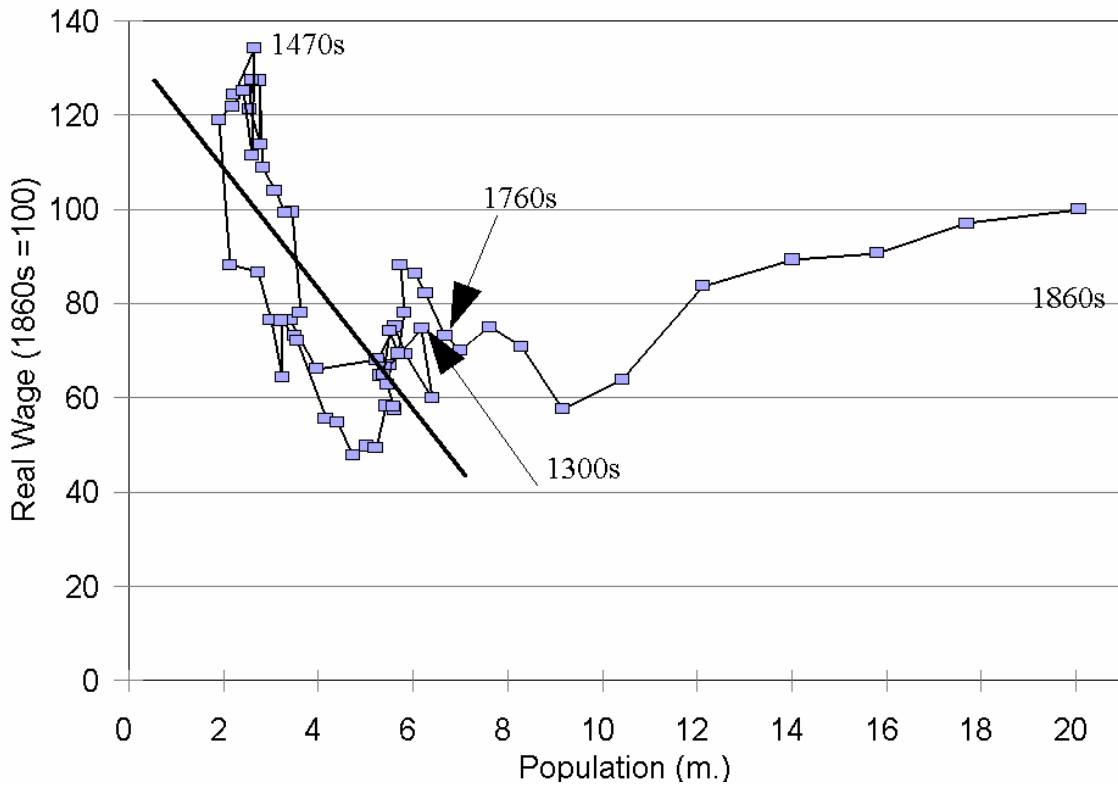
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Figure 1: Real Builders Day Wages from 1200 to 2000



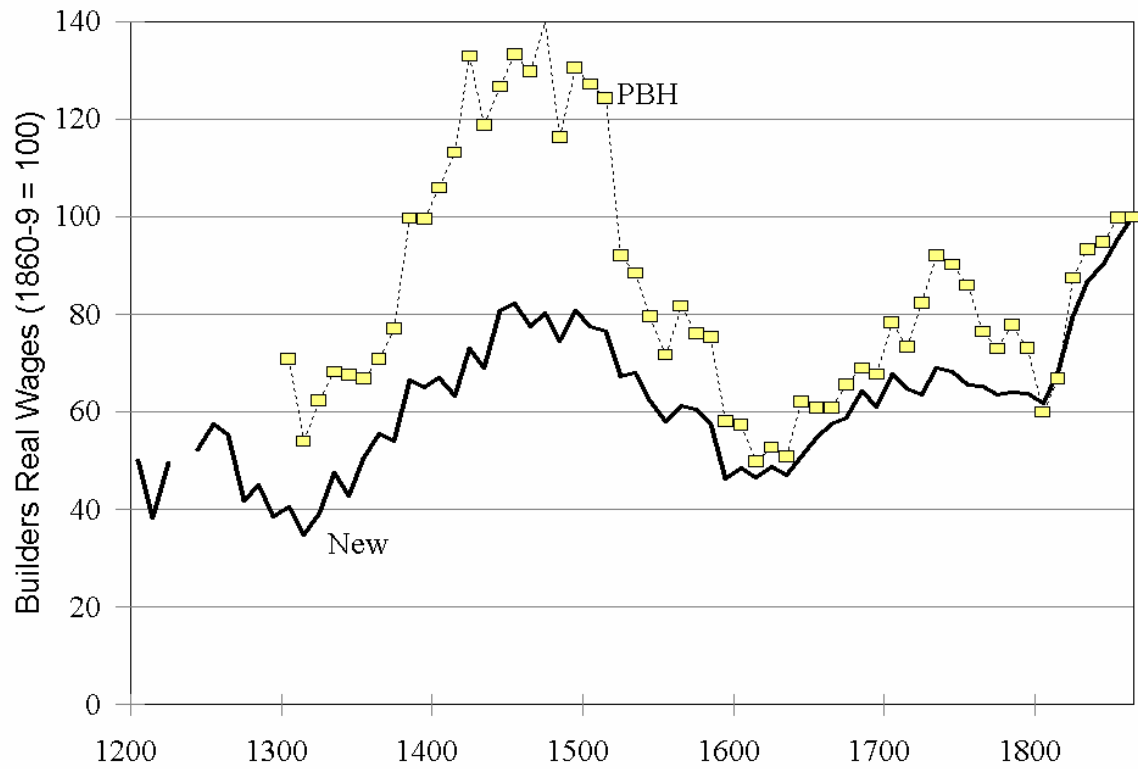
**Figure 2: Real Craftsmen's Day Wages from PBH Versus Population by Decade,
1280-1869**



Notes: The line summarizing the tradeoff between population and real wages for the pre-industrial era is fitted using the data from 1280-9 to 1590-9.

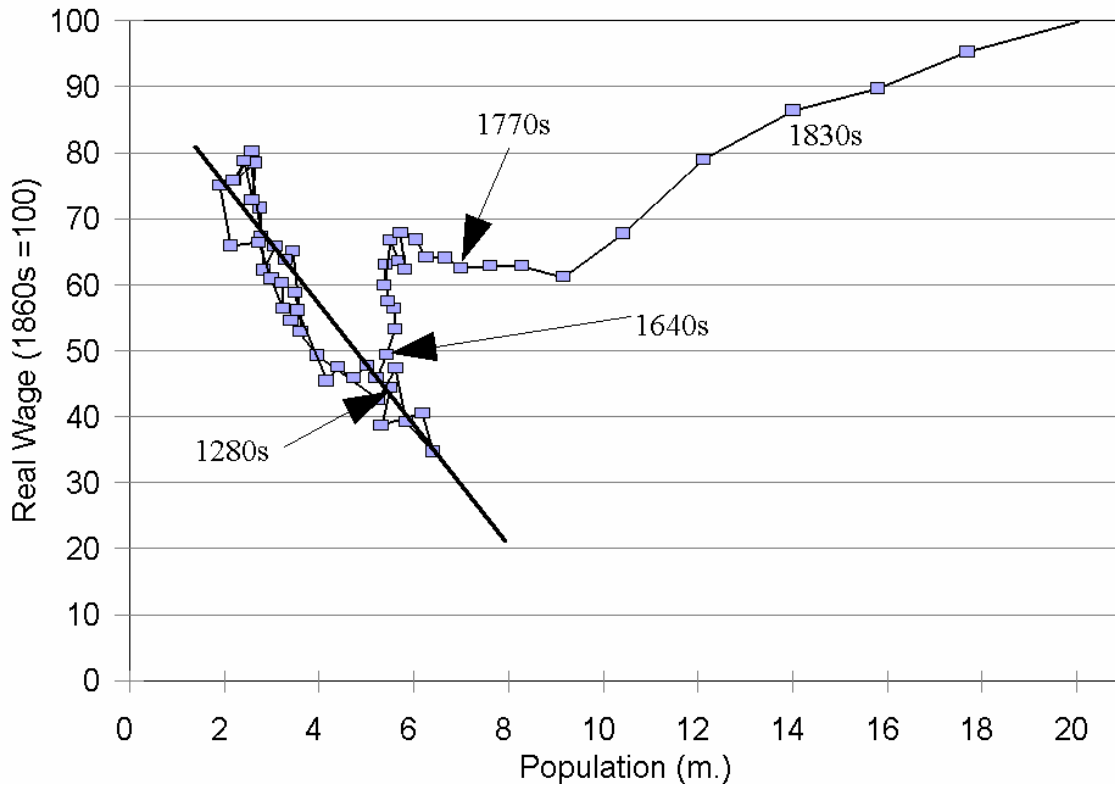
Sources: Real wages. Phelps-Brown and Hopkins (1956). Population, 1540-1850. Wrigley, Davies, Oeppen, and Schofield (1997), pp. 614-5. Population, 1280-1530. Hatcher (1977), Poos (1991), Hallam (1988), Razi (1980).

Figure 3: Real Wages, 1200-1869, PBH versus new series.



Note: 1860-9 on both series set to 100.

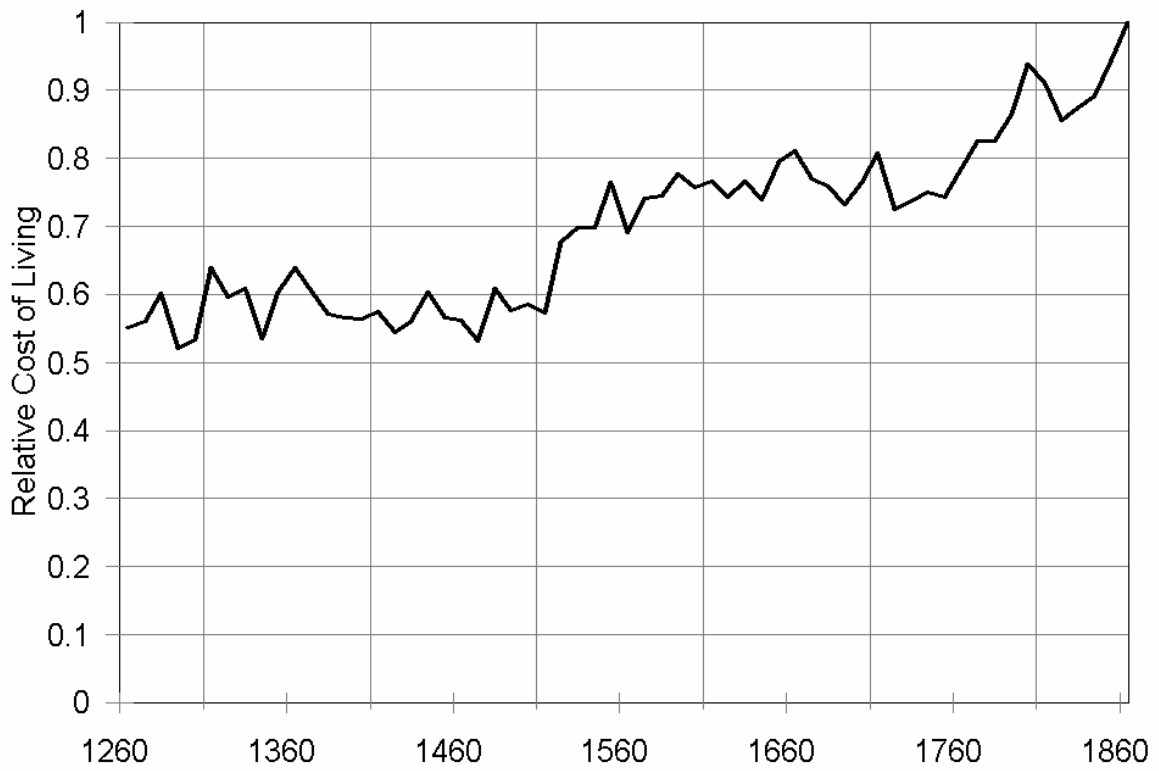
Figure 4: Real Wages Versus Population on the new series, 1280-1869



Notes: The line summarizing the tradeoff between population and real wages for the pre-industrial era is fitted using the data from 1260-9 to 1590-9.

Sources: Population as figure 2.

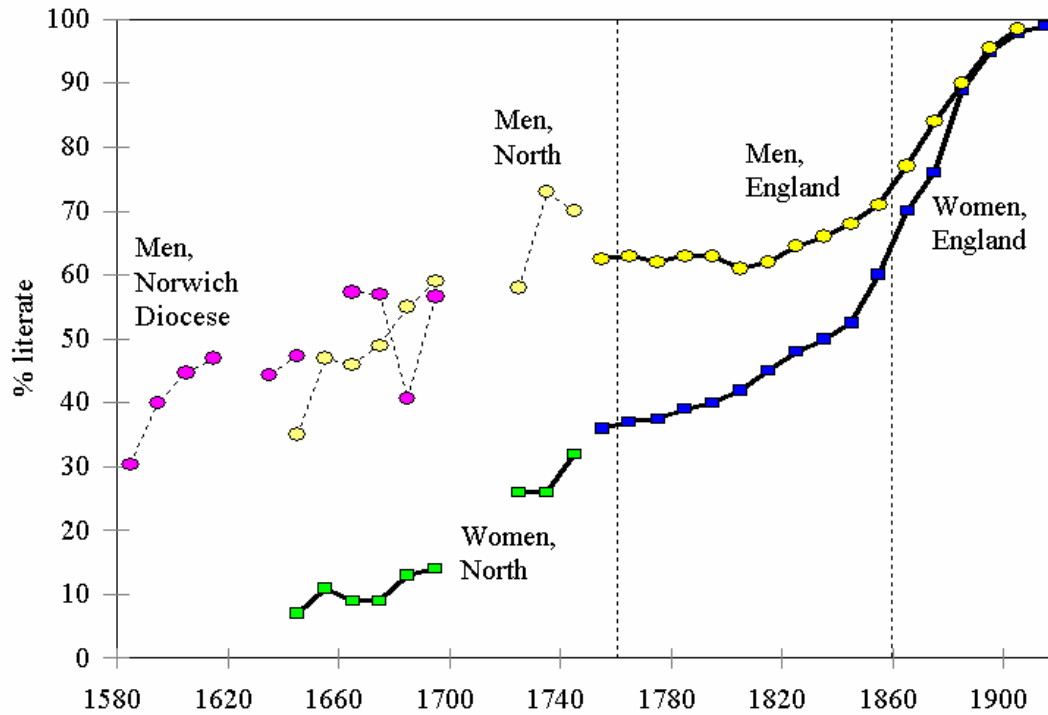
Figure 5: The Cost of Living in PBH Relative to this Paper



Note: The ratio is the relative cost of living by 10 year periods, compared to 1860-9.

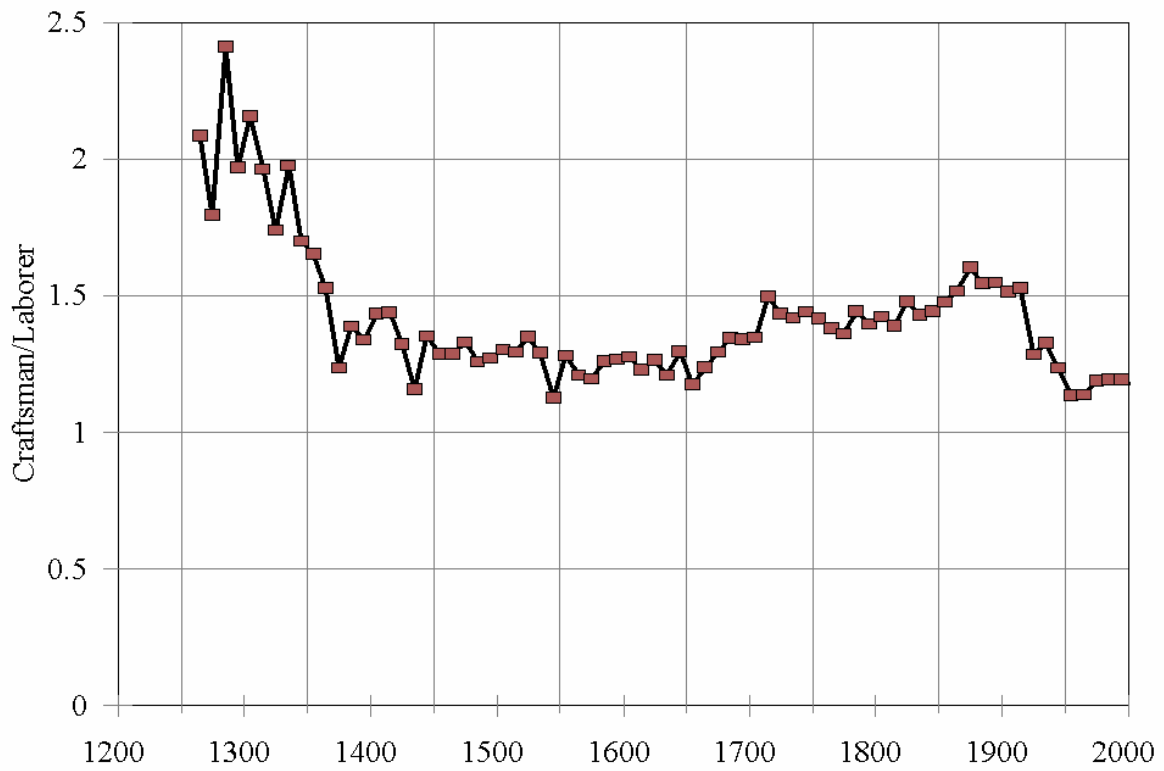
Sources: Table 3. Phelps-Brown and Hopkins (1962b).

Figure 6: Average Literacy in England, 1580-1920



Sources: 1750s-1920s, Schofield (1973), men and women who can sign marriage resisters. The north, 1630s-1740s, Houston (1982), witnesses who can sign court depositions. Norwich Diocese, 1580s-1690s, Cressy (1977), percent of witnesses who can sign ecclesiastical court declarations.

Figure 7: The Wage of Unskilled Relative to Skilled Building Workers, 1250-2000



Source: Table 4.

Table 1: Estimated Hours of Work 1750-1869

Decade	Towns	Observations	Simple average length of day	Towns with multiple observations	Average length of day (controlling for town)
1750	1	2	12.0	-	-
1760	1	3	12.0	1	12.2
1770	-	-	-	-	-
1780	1	3	12.1	1	12.3
1790	2	10	11.8	2	12.0
1800	3	15	11.3	3	11.4
1810	4	20	10.3	4	10.4
1820	5	39	10.4	5	10.3
1830	6	22	9.8	5	9.9
1840	7	33	9.9	6	9.9
1850	8	49	10.0	6	9.9
1860	4	39	9.7	4	9.7

Table 2: The Percentage of Expenditure by Category for Manual Workers before 1869

Category of Expenditure	Vanderlint (1734)	1787-96 (Horrell)	1840-54 (Horrell)	Assumed here
Food and Drink:	54.4	75.4	61.7	68.0
Bread and flour	12.5	17.5	23.5	0.0
Wheat	0	0.5	0.0	21.0
Barley	0	3.6	0.0	1.0
Oats and oatmeal	0	9.9	1.5	2.5
Peas	0	-	-	2.5
Potato	0	6.3	4.0	4.0
Farineous	12.5	37.8	29.7	31.0
Meat	16.7	11.8	9.8	10.5
Fish	0	0.1	0.2	0.0
Bacon	0	0.2	1.8	1.0
Eggs	0	0.0	0.3	0.5
Meat	16.7	12.1	12.1	12.0
Milk	2.1	5.9	2.7	4.3
Cheese	2.1	2.7	1.9	2.3
Butter	4.2	6.2	4.1	5.1
Dairy	8.4	14.8	8.7	11.7
Sugar and Honey	-	4.2	4.5	4.4
Beer	12.5	2.8	1.7	4.7
Tea	0	3.4	2.2	3.3
Coffee	0	0.0	1.0	0.0
Drink	12.5	6.2	4.9	8.0
Salt	-	-	-	0.5
Pepper	-	-	-	0.4
Other Food	4.2	0.6	2.3	0.0
Housing	7.2	5.3	10.9	8.0
Fuel	5.6	4.4	4.8	5.0
Light	2.1	-	-	4.0
Soap	2.1	-	-	0.5
Light and Soap	4.2	3.8	5.2	4.5
Services	8.2	0.1	2.5	2.5
Tobacco	0	0.0	0.7	0.0
Other (Clothing, Bed linen)	20.5	11.0	14.2	12.0

Sources: Horrell (1996), pp. 568-9, 577. Vanderlint (1734), pp. 76-77.

Table 3: The Composition of Bread Costs, 1767

Item	Share of Costs
Wheat	91.7%
Salt	0.8%
Yeast	1.0%
Fuel	3.3%
Wages	3.0%

Sources: Beveridge (1939), p. 542.

Table 4: Living Costs, 1200-1869, By Commodity Groups

Decade	Grain and potato	Meat	Dairy	Sugar	Drink	Salt	Shelter	Fuel	Light	Clothing	Soap	Pepper
1200-9	9.1	4.9	8.3						14.0	17.4		
1210-9	5.6	5.1	7.2		14.2	14.6			13.7	17.6		
1220-9	6.7	7.5	7.6	44.5	19.2	14.4			21.5	16.5		
1230-9	6.2	5.6	8.3		18.8	13.4			16.1	15.0		
1240-9	6.7	8.0	8.7		20.7	17.0			22.9	22.3		
1250-9	7.5	7.9	8.3		16.0	17.1		7.3	20.0	20.8		85.8
1260-9	7.0	8.9	9.4	74.0	16.8	18.3			25.5	18.0		117.5
1270-9	10.4	9.7	10.0	72.4	28.2	21.1		13.2	30.1	18.8	13.5	130.8
1280-9	8.7	11.2	9.0	55.6	28.1	18.9	8.8	13.9	30.1	18.0	18.6	122.6
1290-9	11.2	10.4	9.4	62.7	27.2	24.4	21.4	15.1	36.2	17.5	27.9	150.3
1300-9	8.9	11.7	9.9	55.9	33.0	21.7	19.0	14.8	47.1	18.6	23.9	122.7
1310-9	13.6	13.9	11.9	59.3	34.9	45.2	17.9	17.8	48.7	19.0	19.3	138.9
1320-9	11.3	13.0	12.3	59.9	35.6	31.9	14.7	19.2	52.3	20.1	23.9	152.1
1330-9	8.9	11.8	11.0	57.4	31.6	26.3	14.4	17.1	45.4	19.4	24.3	139.7
1340-9	8.6	11.7	10.7	73.8	25.9	23.8	13.3	19.7	45.2	16.7	24.3	151.7
1350-9	11.8	14.6	10.6	91.7	28.1	56.8	8.1	29.1	49.0	25.9	23.9	319.6
1360-9	11.8	14.3	11.3	81.0	38.8	47.6	9.4	25.6	53.3	28.4		173.0
1370-9	12.4	14.6	10.8	113.4	32.1	54.5	10.6	26.6	51.7	31.4		221.6
1380-9	8.6	14.3	9.7	86.8	28.4	45.4	9.4	24.4	49.3	26.4		138.4
1390-9	9.3	14.6	9.7	100.4	30.3	38.5	8.5	22.6	44.7	24.0		176.0
1400-9	9.8	15.1	9.2	103.2	26.6	51.0	10.0	21.5	45.6	24.8		132.7
1410-9	10.2	16.6	9.9	96.9	32.0	39.0	9.9	19.9	42.8	24.4		271.3
1420-9	8.4	16.3	10.0	87.9	25.9	38.9	9.2	20.5	39.9	24.6	31.0	205.5
1430-9	11.0	15.3	9.9	88.4	41.3	43.9	7.2	19.8	38.2	24.7	30.5	167.1
1440-9	8.2	14.2	10.2	91.4	27.4	37.9	6.9	18.5	37.7	24.3	41.5	107.8
1450-9	8.9	14.3	10.1	92.2	26.8	35.5	6.8	18.4	33.0	24.0	43.6	129.8
1460-9	9.1	14.1	9.7	108.3	29.2	33.0	7.6	18.3	34.4	24.4	38.3	160.7
1470-9	9.4	13.3	9.9	95.7	23.7	33.2	7.7	17.0	32.7	24.8	33.4	166.6
1480-9	10.7	12.8	10.2	95.8	28.2	44.8	8.1	14.9	32.2	24.1	31.4	187.0
1490-9	9.2	12.4	10.6	80.3	30.2	52.9	7.7	15.7	27.4	23.9	34.8	170.2
1500-9	10.3	12.6	9.1	65.8	28.9	37.0	7.6	16.1	26.5	24.9	28.7	197.2
1510-9	10.2	12.1	10.4	101.8	30.6	44.6	8.5	17.5	29.3	23.3	35.5	170.5
1520-9	14.0	14.3	11.0	100.1	31.3	56.5	8.0	18.8	29.5	24.3	40.3	258.5
1530-9	15.0	14.9	11.1	110.2	28.8	56.9	8.5	18.3	31.9	26.6	51.9	256.5
1540-9	16.7	20.4	16.7	184.8	26.9	65.9	10.4	19.6	34.9	28.4	44.2	280.8
1550-9	28.7	23.5	26.0	234.8	34.5	74.3	10.5	28.3	45.1	39.5	90.3	382.7
1560-9	25.9	26.4	28.3	203.4	38.6	83.4	16.8	32.8	59.7	39.8	110.8	493.7
1570-9	28.4	27.2	25.9	239.2	41.2	135.7	12.8	38.1	62.7	51.7	83.2	420.3
1580-9	33.8	29.7	27.5	295.2	42.1	113.1	17.6	41.0	69.1	54.7	85.6	500.4
1590-9	51.0	37.3	31.3	245.0	52.9	150.1	21.1	43.8	92.6	57.4	92.5	541.8

Table 4: Living Costs, 1200-1869, By Commodity Groups (cont.)

Decade	Grain and potato	Meat	Dairy	Sugar	Drink	Salt	Shelter	Fuel	Light	Clothing	Soap	Pepper
1600-9	48.5	38.3	33.0	310.4	60.6	130.4	23.0	49.7	94.4	62.4	92.5	418.0
1610-9	58.1	41.6	36.8	289.8	73.1	123.6	26.5	58.1	100.1	67.5	97.8	300.3
1620-9	56.3	42.6	36.7	249.7	76.4	141.0	24.9	58.6	101.1	72.7	101.3	268.2
1630-9	70.0	45.1	39.6	324.2	79.3	162.5	27.6	61.7	109.5	85.1	100.4	263.8
1640-9	69.0	47.7	43.5	298.0	74.5	210.3	23.6	78.0	119.5	94.6	123.1	271.1
1650-9	66.9	49.2	46.4	280.8	87.2	216.2	24.2	75.9	117.3	92.8	136.2	237.3
1660-9	64.6	51.7	48.3	165.1	91.2	191.8	27.9	81.6	119.8	92.6	112.4	150.7
1670-9	61.5	48.3	49.5	144.8	93.1	199.2	30.7	85.2	110.6	85.8	106.8	147.1
1680-9	54.4	49.0	49.4	134.8	100.9	184.4	32.8	85.0	103.1	83.8	95.3	162.1
1690-9	68.2	51.7	48.1	146.7	113.5	264.3	31.0	91.7	115.9	86.5	94.5	255.2
1700-9	53.1	48.6	43.8	140.5	118.5	473.9	36.2	92.6	106.4	85.5	131.9	203.0
1710-9	63.2	49.9	42.4	125.4	125.1	448.6	33.7	90.8	130.7	89.6	108.8	349.9
1720-9	61.0	49.2	44.1	119.3	130.6	434.1	36.3	88.6	124.4	89.3	146.7	286.0
1730-9	50.5	47.2	43.5	114.9	127.4	363.5	35.3	89.3	116.9	88.1	150.4	220.4
1740-9	51.8	49.2	46.4	121.0	125.3	392.1	32.3	97.3	140.8	90.6	143.4	211.4
1750-9	60.4	50.1	47.3	118.4	123.1	385.8	33.4	97.9	135.8	95.2	159.1	206.2
1760-9	66.5	54.4	48.4	115.7	125.8	384.7	36.8	97.9	146.5	98.8	151.7	212.3
1770-9	75.3	62.2	55.9	119.6	137.3	387.3	39.7	106.9	155.2	96.9	163.7	225.9
1780-9	77.3	64.5	57.9	130.9	133.0	481.3	39.8	106.9	162.1	96.4	160.5	268.6
1790-9	93.5	77.6	68.2	169.2	123.7	609.7	49.4	120.4	178.2	98.6	174.7	281.6
1800-9	134.1	110.7	97.6	191.6	160.9	1357.2	72.9	151.9	230.3	113.1	193.4	230.5
1810-9	145.9	119.1	119.2	204.4	179.9	1633.8	86.9	164.6	249.8	124.2	236.4	251.2
1820-9	103.1	96.1	104.3	143.4	163.2	695.0	87.1	147.7	164.0	117.9	267.8	189.9
1830-9	99.2	83.5	97.1	135.8	129.8	140.3	87.3	136.7	133.9	113.0	191.8	108.6
1840-9	101.7	83.8	94.6	123.4	116.3	123.9	84.5	119.8	122.6	107.0	173.8	79.5
1850-9	98.5	88.5	87.1	116.0	104.3	84.7	89.2	104.1	101.4	98.7	125.8	96.6
1860-9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	107.7	

Notes: The index for each commodity and overall is set to 100 for 1860-9.

Sources: See appendix 2.

Table 5: Price Movements 1451-75 to 1860-9

Expenditure Category	Weight PBH	Price PBH 1860-9/1451-75	Weight Clark	Price Clark 1860-9/1451-75
Grains	0.200	11.7	0.31	11.0
Meat	0.250	14.9	0.12	7.2
Dairy	0.125	13.2	0.12	10.1
Drink	0.225	18.2	0.08	3.8
Honey/Sugar	-	-	0.04	1.0
Salt	-	-	0.005	2.8
Fuel and Light	0.075	5.9	0.09	4.4
Soap	-	-	0.005	2.6
Clothing	0.125	2.9	0.10	4.1
Housing and housewares	-	-	0.10	13.6
Services	-	-	0.03	8.8
ALL	1.00	12.6	1.00	7.0

Sources: Table 4. Phelps-Brown and Hopkins (1962b).

Table 6: Building Wages, the Cost of Living and Real Wages by Decade, 1200-2000

Decade	Craftsmen Day Wage (d.)	Helpers Day Wage (d.)	Wage Helpers/Wage Craftsman	Cost of Living (1860-9= 100)	Craftsmen Real Wage (1860-9= 100)	Helper Real Wage (1860-9= 100)
1200-9	3.3			12.70	49.2	
1210-9	2.0			9.48	41.4	
1220-9	3.0			10.64	53.4	
1230-9				10.07		
1240-9	3.3			11.41	55.7	
1250-9	3.6	2.0	1.85	11.08	62.8	49.5
1260-9	3.6	1.9	1.91	11.33	61.1	46.7
1270-9	3.2	1.9	1.70	14.12	44.1	37.9
1280-9	3.5	1.5	2.38	12.70	52.7	32.2
1290-9	3.3	1.8	1.80	14.89	42.0	34.0
1300-9	3.4	1.7	1.93	14.37	45.1	34.0
1310-9	3.5	1.8	1.96	17.46	38.8	28.8
1320-9	3.4	2.2	1.56	16.42	40.2	37.7
1330-9	3.7	2.3	1.61	14.45	49.2	44.5
1340-9	3.2	2.0	1.55	13.86	43.7	41.0
1350-9	4.6	2.7	1.68	16.80	52.2	45.2
1360-9	5.0	3.4	1.49	17.58	55.0	53.6
1370-9	4.7	3.7	1.27	18.24	50.0	57.3
1380-9	5.0	3.6	1.39	15.09	63.9	67.0
1390-9	4.9	3.7	1.33	15.26	61.4	67.3
1400-9	5.3	3.7	1.43	15.65	65.3	66.6
1410-9	5.2	3.6	1.44	16.20	61.9	62.6
1420-9	5.4	4.0	1.36	14.84	69.7	74.5
1430-9	5.2	4.4	1.16	16.23	61.0	76.5
1440-9	5.6	4.2	1.32	14.15	75.7	83.4
1450-9	5.8	4.4	1.33	14.38	77.2	84.7
1460-9	5.6	4.3	1.30	14.75	72.3	80.8
1470-9	5.8	4.2	1.36	14.49	76.2	81.8
1480-9	5.5	4.2	1.30	15.20	69.4	78.0
1490-9	5.7	4.3	1.33	14.35	75.9	82.9
1500-9	5.5	4.1	1.35	14.49	73.4	79.2
1510-9	5.7	4.2	1.34	15.10	72.6	78.7
1520-9	5.8	4.2	1.38	17.28	64.4	68.0
1530-9	6.1	4.5	1.35	18.06	64.4	69.4
1540-9	6.3	5.2	1.22	21.41	56.4	67.6
1550-9	8.7	6.3	1.37	30.31	55.0	58.6
1560-9	9.6	7.4	1.29	32.08	57.2	64.7
1570-9	9.8	7.7	1.28	33.90	55.6	63.5
1580-9	10.8	8.1	1.33	38.37	54.1	59.1
1590-9	10.9	8.1	1.34	47.69	43.9	47.6

Table 6: Building Wages, the Cost of Living and Real Wages by Decade, 1200-2000 (cont.)

Decade	Craftsmen Day Wage (d.)	Laborers Day Wage (d.)	Wage Helpers/Wage Craftsman	Cost of Living (1860-9 = 100)	Craftsmen Real Wage (1860-9 = 100)	Helpers Real Wage (1860-9 = 100)
1600-9	11.8	8.8	1.34	49.60	45.9	49.8
1610-9	12.7	9.8	1.30	56.06	43.6	49.0
1620-9	13.4	10.0	1.34	55.79	46.1	50.3
1630-9	14.6	11.2	1.30	63.86	43.9	49.0
1640-9	16.3	12.1	1.35	65.46	47.9	51.8
1650-9	17.3	13.7	1.27	66.08	50.2	57.8
1660-9	18.5	14.0	1.32	65.71	54.0	59.7
1670-9	18.5	13.8	1.34	63.93	55.6	60.3
1680-9	20.0	14.3	1.40	61.89	62.0	64.7
1690-9	21.1	14.9	1.42	68.44	59.2	60.8
1700-9	21.7	15.1	1.44	62.86	66.4	67.1
1710-9	22.8	14.6	1.56	67.00	65.3	61.1
1720-9	21.7	14.7	1.47	66.60	62.7	61.9
1730-9	21.9	14.9	1.47	61.67	68.1	67.3
1740-9	22.3	15.0	1.49	63.58	67.4	66.1
1750-9	22.6	15.4	1.47	67.34	64.4	63.8
1760-9	23.4	16.8	1.39	71.53	62.9	65.8
1770-9	24.8	18.3	1.35	78.43	60.7	65.3
1780-9	25.9	18.4	1.40	80.18	61.9	64.2
1790-9	29.3	21.7	1.35	92.36	60.9	65.7
1800-9	38.5	28.7	1.34	125.09	59.1	64.1
1810-9	48.0	35.1	1.37	139.62	66.0	70.3
1820-9	46.6	32.0	1.46	113.28	78.9	78.9
1830-9	46.4	32.6	1.43	104.03	85.6	87.5
1840-9	46.8	32.8	1.43	100.93	89.0	90.9
1850-9	47.5	33.2	1.43	96.42	94.6	96.4
1860-9	52.1	35.8	1.46	100.00	100.0	100.0
1870-9	60.9	39.5	1.54	97.53	119.8	113.2
1880-9	69.8	47.0	1.48	89.56	149.6	146.9
1890-9	73.4	49.4	1.49	84.50	166.7	163.4
1900-9	81.8	56.2	1.46	86.57	181.5	181.5
1910-9	86.6	59.0	1.47	94.44	176.0	174.8
1920-9	182	147	1.23	170	206.0	243.2
1930-9	162	127	1.27	139	224.6	256.7
1940-9	273	230	1.19	243	215.2	264.5
1950-9	406	372	1.09	354	220.4	294.4
1960-9	646	591	1.09	474	261.4	348.5
1970-9	2348	2056	1.14	1127	400.1	510.2
1980-9	6754	5896	1.15	3022	429.1	545.7
1990-9	12634	11020	1.15	4810	504.2	640.6

Note: Wages throughout are measured in old English pence (d.), where £1 = 240 d.

Source: See appendices 1 and 2.

Table 7: Occupations, Literacy and Assets – Will Writers, 1620-1636

Social Group	Wills in sample	Fraction of wills signed with X	Average value of assets bequeathed (£)
Gentry	50	0.11	706
Merchants, Professionals	60	0.11	284
Yeomen, Farmers	439	0.51	271
Traders	60	0.37	87
Craftsmen	193	0.56	87
Husbandmen, Shepherds	212	0.65	63
Laborers	34	0.76	52

Sources: Allen (1989), Evans (1987).

Table 8: Major Locations Supplying Wage Observations

Location	Region	1200-1499	1500-1749	1750-1869	1200-1869
London	London	66	211	119	396
Oxford	Midlands	168	198	30	396
Exeter	Southwest	150	97	66	317
Cambridge	Southeast	65	186	17	268
Canterbury	Southeast	120	127	0	247
Westminster	London	150	45	0	195
York	North	34	146	3	183
Greenwich	London	0	63	119	182
Hull	North	7	134	29	170
Taunton	Southwest	164	0	0	164
Chester	North	0	102	42	156
Carlisle	North	0	60	84	144
Bristol	Southwest	27	37	78	142
Nottingham	Midlands	3	34	97	134
Farnham, Surrey	Southeast	132	0	0	132
Witney, Oxfordshire	Midlands	127	0	0	127
Twyford, Hampshire	Southeast	127	0	0	127
Leicester	Midlands	0	28	92	120
Wycombe, Buckinghamshire	Midlands	115	0	0	115
Durham	North	13	94	0	107
Stratford upon Avon	Midlands	0	10	85	95
Salisbury	Southwest	11	84	0	95
Escher, Surrey	Southeast	92	0	0	92
Dover	Southeast	26	58	0	84
Eton	Midlands	1	81	0	81
Lincoln	Midlands	2	79	0	81
Kendal, Westmorland	North	0	79	0	79
Newcastle	North	0	67	8	75
Chelmsford, Essex	Southeast	0	0	74	74
