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# Wage labour in seventeenth-century London<sup>1</sup>

By JEREMY BOULTON

It is remarkable how little work has been done until recently on the wage rates paid to early modern workers. Unless we understand fully how such workmen were paid, and have adequate empirical data to chart changes over time, we will not know how much weight to place on indices of real wages based on the movement of daily wage rates paid to a variety of building craftsmen. The fragility of the best known series, that constructed by Phelps Brown and Hopkins from data compiled by Thorold Rogers, is especially worrying, given the weight placed on it by later authors. For the early modern period some 40–50 per cent of the entries were taken from builders' wages in Oxford down to 1620; thereafter the series was based mainly on those in Cambridge and Eton. There were relatively few entries for each year: building craftsmen rates ran at about 15 per year for most of the sixteenth and seventeenth centuries, but those for labourers numbered just three per year. Phelps Brown and Hopkins reported that the data collected by Thorold Rogers diminished still further after 1660.<sup>2</sup> They pointed out that only for Oxford did they have a 'reasonably continuous' wage rate series for their whole period, and noted that wage rates in Oxford did not necessarily move in line with those found elsewhere in southern England.<sup>3</sup>

The importance of regional variations in nominal rates, noted by Phelps Brown and Hopkins, makes it all the more welcome that Woodward has recently been able to shed light on wage rate variations between northern towns in the sixteenth and seventeenth centuries.<sup>4</sup> His valuable work has now demonstrated the existence, in that region, of marked variations in wage rates between towns of differing population sizes and economies. For skilled workers, moreover, regional variation became more marked over time. By the end of the seventeenth century his survey found low wage rates for building craftsmen in smaller towns with stagnant economies, but relatively higher ones in those towns and cities with larger and more rapidly

<sup>1</sup> I would like to thank Dr Leonard Schwarz, Dr Brian Outhwaite, and Prof. Donald Woodward for comments on an earlier draft of this article.

<sup>2</sup> Phelps Brown and Hopkins, *Perspective*, pp. 1–12.

<sup>3</sup> *Ibid.*, pp. 6–7.

<sup>4</sup> Woodward, 'Early modern north'. For that same author's earlier classic survey of the household economies of building craftsmen, see Woodward, 'Living standards'. Much work has been done on the household economies of agricultural labourers, particularly on the growing importance of wages, as opposed to the fruits of household production and livestock ownership, in their total earnings. See, notably, Everitt, 'Farm labourers', and Shamma, *Pre-industrial consumer*, pp. 17–51, esp. p. 41, where she concludes that the early modern period was marked by 'a dramatic transformation', namely 'a sharp decline in livestock-holding among the less wealthy segment of the rural population and among all households in towns'. For more recent work on the income of rural labourers, see, in particular, Hassell Smith, 'Labourers in late sixteenth-century England'.

growing populations.<sup>5</sup> Since no such differential increase could be identified for labourers, this meant that the ratio between the wages of craftsmen and their labourers in 'high wage' northern towns rose from 3:2 to 2:1 by 1700 as the demand for skilled craftsmen outpaced their supply.<sup>6</sup> Woodward went on to make some observations about the determinants of the money wage rate, which, he argued, was influenced mostly by 'the interaction between the supply of labour and the demand for it' rather than by official attempts at regulation or the force of custom.<sup>7</sup>

Wage rates do not deserve their relative neglect; they require further study. We are now in a position to make a more secure estimate of the movement of wage rates in the early modern capital. This article presents data on wages paid to building workers culled from a large number of different manuscript sources.<sup>8</sup> The capital was the high wage area *par excellence* in early modern England, a point emphasized most recently by Chartres.<sup>9</sup> If this was so, one might expect to find the same divergence of money wage rates between skilled and unskilled workers that Woodward discovered in his 'high wage' northern towns. Relationships between the supply of labour and demand for it can be assessed in the light of the capital's regular and well-documented visitations of plague and the extensive fire damage of 1666. Both of these mean that periods of acute labour shortages in relation to current demand are relatively easy to identify, while enough work has been done on the capital's early modern economy to supply some information on fluctuations in the size of the skilled and unskilled wage sector in our period.<sup>10</sup>

The first section surveys what can be gleaned about the labour market in the late Tudor and Stuart capital. The second presents the wage rates uncovered and seeks to subject them to critical scrutiny in the light of what we know or can infer about the metropolitan labour market. In section III the rates uncovered are placed in chronological context; and lastly some conclusions are drawn about the determinants and course of money wage rates.

## I

The wages recovered are, overwhelmingly, for workmen in the London construction industry; chiefly labourers, bricklayers, and carpenters.<sup>11</sup> The

<sup>5</sup> Woodward, 'Early modern north', pp. 34-9, and tab. A.1, pp. 40-2.

<sup>6</sup> *Ibid.* For the enduring ratio found by Phelps Brown and Hopkins for southern England after 1410, see Phelps Brown and Hopkins, *Perspective*, pp. 8-10.

<sup>7</sup> Woodward, 'Early modern north', p. 38.

<sup>8</sup> I should like to thank my two research assistants, Maria Davies, and latterly, Dr Richard Adair who collected much of the wage rate information presented herein. I also acknowledge with gratitude funding from the E.S.R.C. under its wages and prices initiative (grant no. WB105/25/009). For the sources used in this study, see appendix. The wage material was collected as part of a much larger study of prices and wages in the capital, now completed. The sources used represent the fruits of a wide-ranging survey of documentary sources covering the London area.

<sup>9</sup> Chartres, 'Food consumption', esp. pp. 170-2.

<sup>10</sup> For London's demography, see Finlay and Shearer, 'Population growth'; Slack, *Impact of plague*; Sutherland, 'When was the Great Plague?'; Landers, *Death and the metropolis*. For useful recent work on the capital's economy, see esp. Power, 'East London'; Beier, 'Engine of manufacture'. For recent work on eighteenth-century London, see esp. Schwarz, 'Standard of living'; *idem*, *London in the age of industrialisation*, esp. pp. 157-207.

<sup>11</sup> Most of the workmen were, in fact, bricklayers, and carpenters and their labourers.

building industry formed a minor but far from negligible part of the capital's economy. Beier estimated that between 6.5 per cent and 8.4 per cent of adult males were occupied in the building sector, with a further 4 to 5 per cent designated as labourers.<sup>12</sup> Such estimates suggest that the wage rates examined in this article would have been of direct interest to some 10 to 13 per cent of the capital's population, representing more than 50,000 people by 1700.<sup>13</sup> Builders, and especially labourers, were also found far more commonly in suburban parishes than in the inner city parishes.<sup>14</sup> Higher mortality rates in suburban London might thus have had disproportionate effects on the local supply of workmen.<sup>15</sup>

Most building craftsmen living within the city and its liberties would have been members of one of the relevant London companies, but many, perhaps the majority, living in the suburbs would not have belonged to such organizations.<sup>16</sup> To judge from the decline in apprenticeship in the capital in the seventeenth century, it might be assumed that formal regulation by companies diminished in this period. Fewer London carpenters belonged to their company by 1640 than in 1600.<sup>17</sup> We must, however, be careful not to underestimate the role of companies in regulating the capital's construction industry. The London Masons' Company seems to have been valued by many practising masons, and as late as 1696 it was undertaking city-wide general searches for master masons within its jurisdiction.<sup>18</sup> When the question of wage regulation in the building industry came up in the middle of the seventeenth century, the Lord Mayor asked the Carpenters' Company to send their opinions as to the appropriate level to be enforced, which hardly suggests that such institutions were entirely irrelevant to working practices in the construction industry at the time.<sup>19</sup> Labourers had little more than a rudimentary fellowship designed to regulate their hiring

<sup>12</sup> Beier, 'Engine of manufacture', p. 148.

<sup>13</sup> For a useful summary of the recent literature on London's population size, see Schwarz, *London in the age of industrialisation*, p. 126; Harding, 'Population of London'.

<sup>14</sup> Beier, 'Engine of manufacture', p. 148. Figures for the Southwark parish of St Saviour's are comparable to those of the city within the walls: Boulton, *Neighbourhood*, pp. 48-9. For Stepney, see Power, 'East London', esp. p. 105, tab. 7.1.

<sup>15</sup> For the suggestion that the 1636 plague epidemic was concentrated in the suburbs and hence had a disproportionate effect on the supply of building labourers, see Woodward, 'Early modern north', p. 30, n. 41.

<sup>16</sup> Recent estimates have suggested that from the mid-sixteenth to the mid-seventeenth century some three-quarters of adult males within the old city and its liberties would have been citizens of London: see Pearl, 'Change and stability'; Rappaport, *Worlds within worlds*, esp. p. 53. Even by 1600, however, many craftsmen operated without the questionable benefits of belonging to a London company and paying its quarterage fee. Beier, following the historians of that company, suggests that even as early as 1600 most carpenters in London, some 60%, did not actually belong to the Carpenters' Company: Beier, 'Engine of manufacture', p. 159. By 1640 this figure had apparently reached 70%.

<sup>17</sup> Schwarz, *London in the age of industrialisation*, p. 213. For the decline in London apprenticeship, which cannot be extrapolated to all companies (since some attempted to expand their membership in the later seventeenth century) see Schwarz, 'London apprentices in the seventeenth century', pp. 18-22; Finlay, *Population and metropolis*, pp. 66-7; Beier, 'Engine of manufacture', pp. 154-9.

<sup>18</sup> Knoop and Jones, *London mason*, pp. 9-26, 67-84.

<sup>19</sup> Guildhall Library, London (hereafter GL) MS. Carpenters' Company Court Book: 4329/5, for 5 April 1655 the minutes record that the governing body sent some rates back to the Mayor in 'pursuance of your Lordships desire of our opinion for the reducing of the xcessive wages of Laborers and workmen in these times of great plenty we humbly conceive [these rates] to be sufficient'.

within the City and its liberties.<sup>20</sup> Most were presumably hired directly by foremen and 'purveyors' for gang work, or by master craftsmen, and some must have had relatively long associations with particular masters, partnerships, and institutions.<sup>21</sup>

In addition to their own money wage, master craftsmen earned income from profit on the supply of raw materials and the labour of apprentices and other workmen.<sup>22</sup> In addition to charges made for the labour of sons, apprentices, and journeymen, as well as raw materials, one surviving London bill explicitly made the point that master craftsmen were taking 'profit' from the wages they charged for the daily wage of their labourers.<sup>23</sup> London masons, it was asserted in 1710, commonly 'have advantage by their men' in this way, while Campbell wrote in 1747 of joiners who commonly paid their workmen 2s. 6d. per day but charged 3s. to their customers.<sup>24</sup> We must also beware of assuming that building labourers acted only as manual workers on building sites for a daily wage. In Southwark some labourers also described themselves as porters, weavers, or even building craftsmen.<sup>25</sup>

How important, though, were money wages in the London construction industry? This question needs to be asked since some would argue that the scale of (largely hidden) non-monetary payments makes a nonsense of any trend in earnings or wages derived from money wage rates alone. Workers in some sectors of the metropolitan economy were in a particularly favourable position to take perquisites or rewards as of right, notably those in shipbuilding and tailoring or anyone working among the rich pickings of the London docklands.<sup>26</sup> Those in the construction industry might have been less well placed to acquire such perks. Apart from those on large projects, most building workers laboured on small, relatively easily controlled sites. On larger sites, such as St. Paul's Cathedral, it was common to employ night watchmen, presumably to guard against petty pilfering by employees or anyone else.<sup>27</sup> We do not know how much, if anything, was customarily allowed to building workers by employers in the way that it was, for example, allowed to shipwrights and their workmen.<sup>28</sup> No bill or institutional record examined to date refers to the fate of extra raw material, offcuts, and so on.<sup>29</sup>

<sup>20</sup> The Alderman noted orders for the 'Company of Labourers' governed by 12 rulers in the early seventeenth century: Corporation of London Record Office (hereafter C.L.R.O.), Rep. 27, fos. 98, 100. See also Rep. 50, fo. 305 noting the appointment of an 'Upper City Labourer' and his 'deputy'.

<sup>21</sup> A bricklayer at the Bridge House hired a certain Richard Greenwood as his labourer from 1672 to the 1690s: C.L.R.O. Bridge House Accounts, weekly payments, 3rd ser., vol. 12, fos. 137, 191, 253, 303, 352, 403; vol. 13, fos. 18v., 42, 71, 95, 122, 149v., 176, 204; vol. 14, fos. 16, 41, 69, 95v., 122, 148.

<sup>22</sup> Woodward, 'Living standards', pp. 31-9.

<sup>23</sup> A carpenter's bill dated 1701 in the Carpenters' Company Archive, GL MS. 4344/21, shows that 2d. out of the 24d. charged for a bricklayer's labourer was, in reality, profit.

<sup>24</sup> Knoop and Jones, *London mason*, p. 61; Campbell, *London tradesman*, p. 161.

<sup>25</sup> Boulton, *Neighbourhood*, pp. 72-3. For remarks along the same lines, see Schwarz, *London in the age of industrialisation*, pp. 167-9, 183-4.

<sup>26</sup> See the wide-ranging article and references cited in D'Sena, 'Perquisites'. See also Linebaugh, *London hanged*, esp. pp. 371-441.

<sup>27</sup> See GL MS. 25473/1/fo. 36, for work done on St. Paul's; December 1633: hired a labourer 'for watching 2 nights at 8d. the night is. 4d.'.

<sup>28</sup> See Richardson, 'Wages of shipwrights', pp. 265-74.

<sup>29</sup> This is similarly true in northern towns: Donald Woodward, private communication.

If we do not yet know much about officially sanctioned perquisites or regular theft by employees from their places of work, we are on firmer ground when it comes to perks and rewards given in the form of food and drink. It was common, although far from universal, for building workers on the job to be provided with breakfast, usually bread and beer. Such meals cost employers between 1d. and 2d. in the seventeenth century.<sup>30</sup> Workmen were also sometimes given meals on completion of various stages of construction projects.<sup>31</sup> Such 'treats' were expected by workmen, but were not always forthcoming.<sup>32</sup> Rewards might also take the form of cash incentives, paid to 'make them friends' to their employer, to reward them for working at unseasonable times, or for not deserting to other projects.<sup>33</sup> None of these perks seem to have affected the prevailing wage rate paid to the workmen in question, and they should be seen simply as a means of improving workers' productivity and loyalty by a customary incentive bonus. Breakfasts and feasts were not intended to provide full meat and drink provision in lieu of part of the daily wage, as specified in the wage assessments made by J.P.s for London and elsewhere in the sixteenth and seventeenth centuries.<sup>34</sup>

Wages, as Schwarz has argued, probably formed the bulk of the income of adult male building workers and remain a reasonably good proxy for assessing trends, although not the absolute level, in their income.<sup>35</sup> How important was this money wage to the construction worker's family? Such wages formed only part of the income of their families. Recent research has emphasized the fact that the majority of married women would have been earning part or all of their own maintenance in London by participation in casual retail and domestic work, and members of the building trades were no exception in expecting their wives to work.<sup>36</sup> Children, too, would have been expected to labour, although relatively few entries relating explicitly to children, boys, or sons have been found actually working in the

<sup>30</sup> See for example, the 'breg fasts' given by the owner of the Bowrey property, GL MS. 3041/7 (iii); a paviour's bill in C.L.R.O., Gresham College MS. 150.4, 26 March 1677; Greater London Record Office (hereafter G.L.R.O.), building accounts of St. Thomas's Hospital, HI/ST/D33/2, *passim*. For food and drink given to northern workmen, see Woodward, 'Early modern north', pp. 24-5.

<sup>31</sup> See G.L.R.O., HI/ST/D33/fo. 16, 28 May 1698: 'paid the charge of a raising Diner for the workmen that raised the new buildings £3 5s. 4d.'. See also churchwardens' accounts for St. Mary Aldermary, GL MS. 6574, fo. 19 (1627-30).

<sup>32</sup> See the eighteenth-century workmen who petitioned Westminster J.P.s for 'a treat according to antient custom': Gilboy, *Wages*, pp. 19-20.

<sup>33</sup> For monetary tips to joiners, see Boulton, *Neighbourhood*, p. 139. Workmen working to repair St. Paul's Cathedral in 1561 were paid 6s. 'Geven in Rewarde to 12 Labourers and woorkmen workinge in Paules on the Sondag in the same weeke': GL MS. 25618, fo. 5v. An architect in 1633 advised employers to withhold wages to prevent workers spending them quickly and 'running to other works as many (upon slight occasion) do': Knoop and Jones, *London mason*, p. 54.

<sup>34</sup> For some surviving London wage assessments mentioning rates both with and without meat and drink, see Hughes and Larkin, *Proclamations*, 2, pp. 233-5, 256, 372-4, 401-3, 422-5, 503-5, 512-4, 522-4, 536-9; 3, pp. 40-2. For a Restoration assessment for Middlesex see Cunningham, *English industry*, pp. 887-93. For similar remarks about London wages in the sixteenth century, see Rappaport, *Worlds within worlds*, pp. 128-9.

<sup>35</sup> Schwarz, *London in the age of industrialisation*, p. 166.

<sup>36</sup> Earle, 'Female labour market', where app. A shows that wives of construction workers were domestic servants, took in washing, nursed children and the sick, sold fruit, did needlework, sold pictures, kept drinking establishments, or made pots. One labourer's wife described herself, too, as a day labourer: *ibid.*, p. 352.

construction industry. Despite these other sources of income, however, the male head of household probably brought home the bulk of earnings, particularly given the irregularity and lower pay of female and child work.<sup>37</sup>

Lastly, some comment should be made on working conditions and working hours in the capital. The first and most intractable problem is, of course, the near impossibility of discovering anything about the level of employment, the number of days actually worked per year, week, or month. For members of the construction industry, perhaps more than some other sectors of the capital's economy, seasonal unemployment must have been considerable. Campbell (writing—it should be recalled—during a depression in the building industry in the eighteenth century) routinely commented that many of those employed in construction were unemployed for four or five months every year, although sometimes he seems to have been describing voluntary leisure rather than involuntary unemployment.<sup>38</sup> A more direct measure of the working year can perhaps be gleaned from an analysis of the call books for those working on sites in and around St. Paul's Cathedral after the Restoration. This suggests that 34 days other than Sundays (many of them religious and civic holidays or days on either side of these) were not worked in 1669, although it is quite possible that the ecclesiastical authorities were more likely to expect stringent observance of religious holidays than did secular employers, and this says nothing about the lessening of the volume of employment on that or other sites during the winter months.<sup>39</sup>

The difference between the length of the working day in summer and in winter meant that it was common, but by no means universal, to pay higher wages during the summer months. A surviving Middlesex wage assessment indicates that 'the best sort' of building craftsmen were supposed to receive 6d. more in summer, a period running from mid-March to mid-September; the best sort of building labourers were to get 2d. more during the same season. However, wage assessments surviving for the city proper make no reference to such seasonal differences in rates.<sup>40</sup> In practice the wage rates presented here are generally summer rates, since those predominate in the surviving documents, partly because, presumably, employment rates were

<sup>37</sup> *Ibid.*, pp. 342-3. Figures calculated by myself, not presented to save space, indicate that the daily wages of women were only 45% of those of building labourers. For the employment (and especially underemployment) of children, see Cunningham, 'Employment of children'.

<sup>38</sup> Campbell, *London tradesman*. The journeyman mason 'when employed' earned between 2s. 6d. and 3s. per day 'but they are idle about four Months of the Year, unless they have some Skill in sculpture, in which they may be employed all the Year': *ibid.*, p. 159. Bricklayers' workmen earned similar wages, 'But they are out of Business for five, if not Six Months in the Year; and, in and about London, drink more than one Third of the other Six': *ibid.*, p. 160. Similarly plasterers were thought to be 'out of business about four months, except in Jobbing': *ibid.*, p. 163. For the classic statement of the backward sloping supply curve for labour, see Coleman, 'Labour in the English economy'. See also Schwarz, *London in the age of industrialisation*, for an up-to-date account of London seasonality, pp. 103-23. Schwarz estimates that fluctuations in employment of between 20 and 25% for skilled and semi-skilled trades would be a conservative estimate of the effect of seasonal swings in demands for labour: *ibid.*, p. 122.

<sup>39</sup> On the feast of St. Simon and St. Jude (28 Oct.) 1668, when no labourers were working at St. Paul's, Pepys noted the presence of workmen around his house. For the St. Paul's call books, see GL MS. 25471/16/A, 25485/1. For Pepys, see Latham and Matthews, eds., *Diary of Samuel Pepys*, ix, p. 340.

<sup>40</sup> Cunningham, *English industry*, pp. 887-93; Hughes and Larkin, *Proclamations*; for the 1655 Assessment, which also makes no seasonal distinction, see B.L., MS. 669, fo. 19 (76).

higher during the summer months than during winter.<sup>41</sup> However, since before about 1640 many of the sources supplying the wage rates used here often do not distinguish between summer and winter rates, all rates encountered have had to be lumped together.<sup>42</sup>

The type of construction site and the nature of the employer also affected wage rates. One needs to distinguish between large sites and long-term jobs, such as cathedral repair, royal works, or regular maintenance jobs done at London Bridge, and those running repairs and small-scale construction done for smaller institutional and private employers. This study does not include wage rates found on the larger sites for the following reasons. First, such rates were often lower, sometimes markedly so, than on other sites. Labourers repairing St. Paul's Cathedral after the Great Fire received between 2d. and 4d. less than the prevailing rate of 20d. Those employed on royal works were also consistently underpaid, especially before the civil war, according to surviving accounts.<sup>43</sup> On occasion very low rates can be found for some workmen permanently employed by the institutions in question. The Bridge House, for example, employed labourers at a rate of 12d. a day from 1623 until 1689, at which time a surviving petition from them pleaded for an increase given that they were 'constantly attending and labouring in the work of the Bridge house from morning till night for which their allowance & wages is but 12d a day a peice which is the whole subsistence of themselves and families'.<sup>44</sup> Such underpayment may have occurred because such labour was organized in gangs by foremen filling contracts or because workmen on such large sites were especially vulnerable to being undercut by imported cheaper labour from outside the London area.<sup>45</sup> It is possible, too, that lower rates were accepted because of the more regular employment on such sites.<sup>46</sup> The second point is that on large sites accounting methods were unusually precise, and may not be typical of normal working practices. Rates by the hour, complicated calculations of overtime, and Sunday working are all found in such official records. A further drawback of such records is that wage rate assessments made by J.P.s and city authorities, or announced by royal proclamation and contained

<sup>41</sup> Leonard Schwarz, private communication; Woodward, 'Early modern north', p. 42.

<sup>42</sup> The Phelps Brown and Hopkins wage rate series, too, make no seasonal distinctions; they make reference to the problem, but circumvent it by avoiding 'mechanical treatment' of their data, and merely selecting the prevailing rate: Phelps Brown and Hopkins, *Perspective*, p. 2. A separate examination of summer and winter wage rates from more precisely dated sources revealed that only a proportion of London workmen seem to have received lower rates during winter work. The modal rates per decade calculated here show a marked and consistent seasonal difference only during periods of wage rate instability.

<sup>43</sup> For the records of payments for St. Paul's, see above, n. 39. For wages paid to workmen on royal works at the Tower of London, see Hutchins, 'London wages'. Wages paid to building labourers at the Tower after 1668 seem more realistic. Before then their *maximum* rates are between 2d. and 4d. lower than those encountered elsewhere.

<sup>44</sup> C.L.R.O., Bridge House accounts and sundry papers, 545C-F.

<sup>45</sup> See the importing of labour to repair St. Paul's in 1561, GL MS. 25618, fo. 7v: 'allowed to 2 payre of Sawyers for Comynge from Redynge 5s 4d'. London masons petitioned against the use of non-free workmen at St. Paul's in 1621-42 and combined with the Tylers and Bricklayers Company to resist an attempt by the Earl of Devonshire to employ non-free craftsmen in 1628: Knoop and Jones, *London mason*, p. 10. For riots between London labourers and Irish navvies taking cheaper wages on the site of the church of St. Leonard Shoreditch in the early eighteenth century, see Gilboy, *Wages*, p. 18.

<sup>46</sup> A suggestion made by Donald Woodward.



in statute law, might have carried more weight in the public rather than the private sector.<sup>47</sup>

## II

This section presents the money wage rates of labourers and building craftsmen, excluding those described variously as apprentices, journeymen, workmen, lads, boys, and servants. There are, of course, a number of ways in which such data can be treated. Phelps Brown and Hopkins avoided 'mechanical treatment' of such rates, to overcome variations caused by different levels of skill, experience, and seasonal variation, and after graphing the figures 'selected out' what they saw as the prevailing rate.<sup>48</sup> Rappaport, however, for sixteenth-century London used median rates 'in most years' to construct his wage rate series.<sup>49</sup> The approach adopted here has been to eliminate, as far as possible, subjective judgement as to the prevailing rate and for every year, where possible, the modal rate has been selected as the wage prevailing in any one year. Such a treatment has the advantage that stability is not built into the system (the result of selecting a 'prevailing' rate), but is clearly still at the mercy of the distribution of rates encountered in the manuscript material, of skill and status differences within crafts, and of changing rates between summer and winter.<sup>50</sup> To help the reader the different rates discovered are presented in the form of scatter diagrams (figures 1-2), the modal rates are presented in both graphic (figure 3) and tabular form (appendix), and a summary table of modal wages by the decade is also presented to facilitate comparison with some other series (table 1). It is hoped that readers can then make their own further refinements of the rates presented.<sup>51</sup>

The distribution of values encountered (figures 1-2) is not unlike that presented long ago by Phelps Brown and Hopkins for sixteenth-century Oxford building craftsmen to illustrate the behaviour of wage rates in a volatile labour market.<sup>52</sup> Some of the variation within any one year may be due to seasonal factors, although similar pictures can be derived using the far fewer precisely dated entries for both labourers and building craftsmen. Pay differentials within the building trade, however, account for much more of the variations encountered. Sixteenth-century wage assessments make it clear that the wages of master craftsmen would be higher than those of apprentices and journeymen.<sup>53</sup> In 1655 the London assessment indicated that 30d. should be the maximum daily wage for a master, 24d. for his

<sup>47</sup> For precise accounting methods on large sites, see the St. Paul's material cited earlier, and also for fascinating glimpses into work literally measured by the hourglass, Knoop and Jones, 'Overtime in the age of Henry VIII'.

<sup>48</sup> Phelps Brown and Hopkins, *Perspective*, p. 2.

<sup>49</sup> See Rappaport, *Worlds within worlds*, p. 129.

<sup>50</sup> *Ibid.*, pp. 128-9 recites the usual problems.

<sup>51</sup> The raw data on which this article is based will be available shortly in machine-readable form.

<sup>52</sup> Phelps Brown and Hopkins, *Perspective*, pp. 3, 9.

<sup>53</sup> Hughes and Larkin, *Proclamations*, 2, p. 235, for example, insisted that carpenters should receive 13d. per day, without meat and drink, but their apprentices of three years' standing just 11d., while labourers were to get 9d.

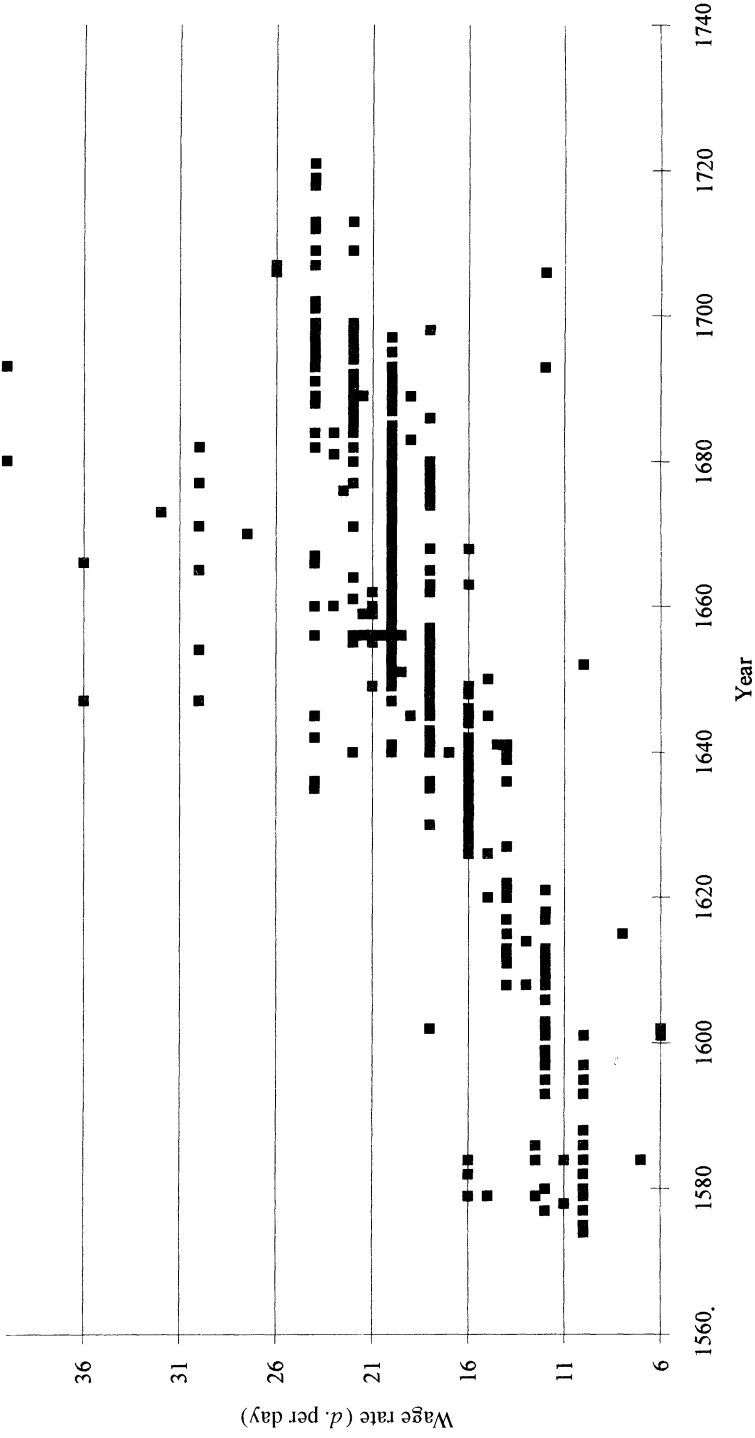


Figure 1. *Labourers' wage rates in London, 1574-1720*  
Source: see app.

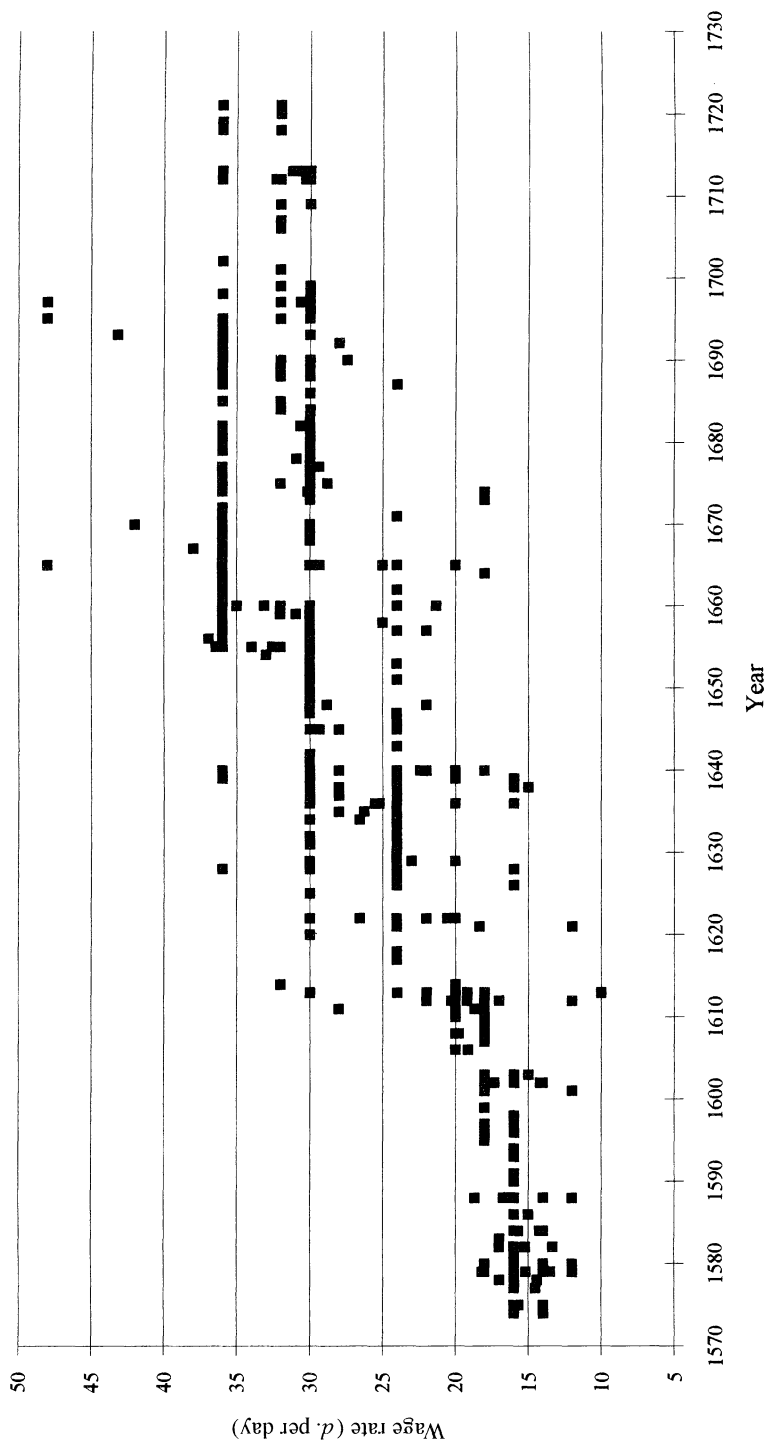


Figure 2. Wage rates of building craftsmen in London, 1574-1720  
Source: see app.

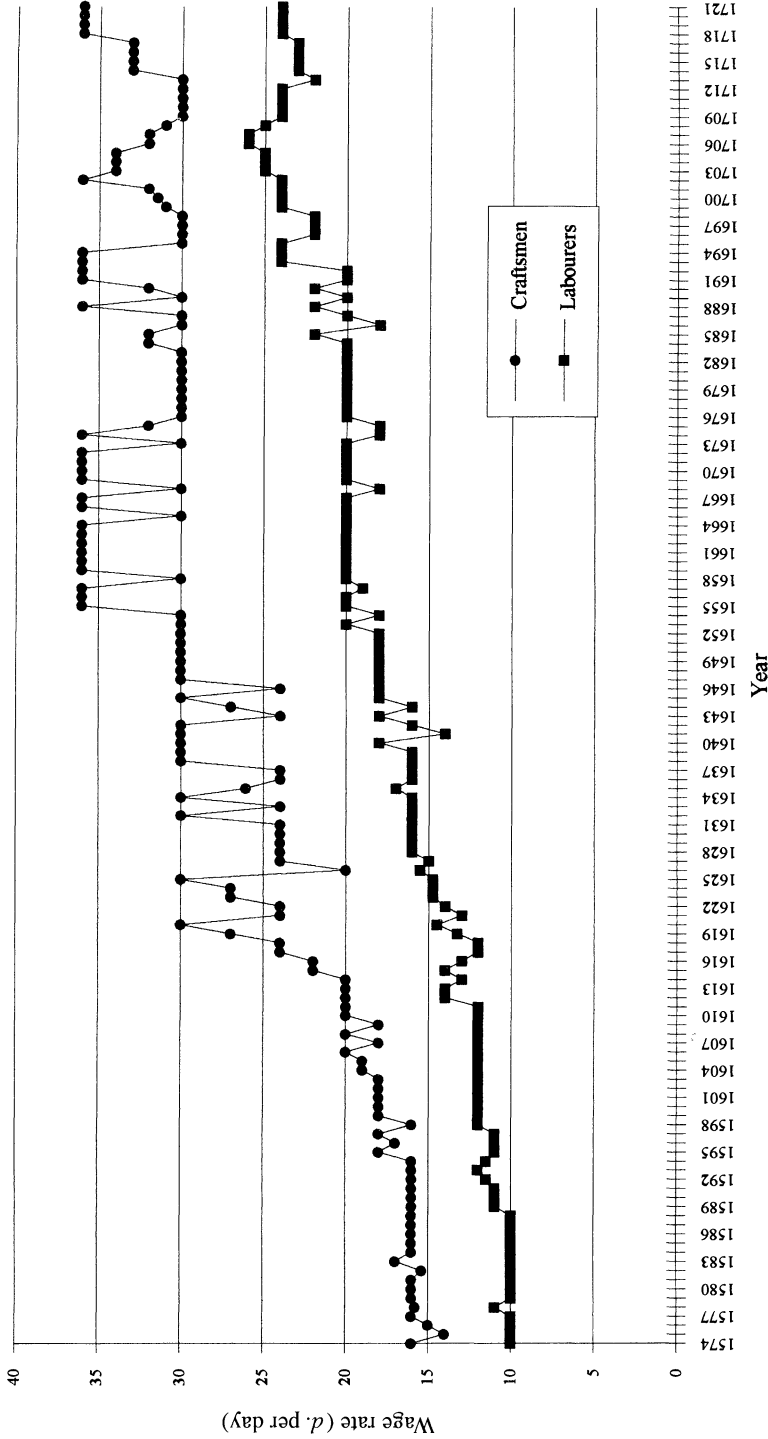


Figure 3. Modal wage rates of London building craftsmen and labourers, 1574-1720  
Source: see app.

journeyman or apprentice 'having been brought up in his Trade full two yeares', 18d. for less experienced apprentices, while labourers were to receive just 16d. Eighteenth-century commentators made similar observations about pay differentials in the building trades.<sup>54</sup> Unless descriptions of workmen were highly specific a wide range of rates will, inevitably, be recovered. Craftsmen incorrectly described as labourers, apprentices described as craftsmen, or a sudden weighting towards one level of skill in the sources, might well alter the pattern of rates. Moreover, where sources do not explicitly identify boys or sons some exceptionally low rates may be included in error. Such problems are common to all studies of wage rates in the early modern town or city and make comparisons across time and space especially difficult.

Table 1. *Wage rates of building craftsmen and labourers (d. per day)*

	Modal wage rate		Ratio of craftsmen to labourers
	craftsmen	labourers	
1570-9	16	10	1.60
1580-9	16	10	1.60
1590-9	16	12	1.33
1600-9	18	12	1.50
1610-9	20	14	1.43
1620-9	24	16	1.50
1630-9	30	16	1.88
1640-9	30	18	1.67
1650-9	30	20	1.50
1660-9	36	20	1.80
1670-9	30	20	1.50
1680-9	30	20	1.50
1690-9	30	24	1.25
1700-9	32	24	1.33
1710-9	30	24	1.25

Source: see app.

Figures 1 and 2 illustrate these features of money wages. It was rare for any one year to yield only one wage rate, and the distribution of values found for building craftsmen was, as expected, particularly wide. Nonetheless, it is clear that money wages moved steadily upwards during the seventeenth century. The modal values presented in table 1, and the annual ones presented in the appendix, show that money wages for both craftsmen and labourers doubled in the course of the seventeenth century. Labourers commonly earned 12d. per day at the beginning of the period, but received 24d. by the early eighteenth century.<sup>55</sup> Craftsmen seem to have been paid 18d. a day in the first decade of the seventeenth century and were paid between 30d. and 36d. by the early eighteenth century.

<sup>54</sup> Campbell, *London tradesman*, pp. 159-65.

<sup>55</sup> Presumably at summer rates. These are 2d. less than those cited by Schwarz following Gilboy for the years 1701-34, using winter rates: Schwarz, 'Standard of living', p. 36, and private communication. The sixteenth-century wage rates are similar to those discovered by Rappaport, *Worlds within worlds*, pp. 401-7.

The technique of selecting the modal rate works reasonably well for labourers, whose modal daily rates for each year of the period 1574-1720 are presented together with those for craftsmen in figure 3. Given the spread of annual values encountered, there is remarkable consistency in the prevailing rates for the less skilled workforce, but the modal rates for building craftsmen are more variable. In particular, comparing figure 3 and table 1 indicates that there were considerable annual differences in the prevailing rate for the 1620s and 1630s, and shows that 36d. predominated from 1655. That was the most commonly found daily rate from the mid-1650s until the mid-1670s but it fell to 30d. thereafter, although only in the 1660s was this the prevailing rate for an entire decade. This is particularly striking, given the view of Phelps Brown and Hopkins that wage rates fell only rarely in the early modern period.<sup>56</sup> This could represent some sort of historical reality which would have been lost if a less mechanical treatment of wage rates had been adopted. There are, for example, signs of a shortage of skilled labour in the building industry in London in the 1650s which must have been greatly exacerbated by the plague and by the leap in demand after the Fire of 1665-6.<sup>57</sup> Such a shortage might have driven up the prevailing skilled wage rate until the dearth of skilled labour was made good by both increased recruitment and a slackening of employment restrictions by the city authorities as well as a fall in the tempo of rebuilding.<sup>58</sup> If this was the case, then London supplies one rare instance of a documented fall in the money wage rate.

It might be the case, however, that the modal rate employed here works less well for craftsmen since it is vulnerable to alterations in the pattern of employment and the effect that such shifts would have on the wages encountered. As can be seen from figure 2, two prevailing rates sometimes existed in any one year, reflecting skill differentials within the construction industry. Accordingly, table 2 presents different measures of the London craftsmen's rate by the decade, including the median rates, the 75th percentile rate, and the mode.<sup>59</sup>

Table 2 indicates that it was in the 1650s that the wage rates encountered for building craftsmen became particularly diverse, with the rate of 36d. per day being returned as the 75th percentile in every decade from then until the 1680s. All three mathematical measures indicate that craftsmen received higher wages in the 1660s. This could mean either that there were,

<sup>56</sup> Phelps Brown and Hopkins, *Perspective*, pp. 7-8.

<sup>57</sup> Both masons and carpenters reported on the lack of hands in the 1650s, and made efforts to increase recruitment by raising the number of apprentices enrolled. See GL MS., Carpenters Company Court Book: 4329/5, 11 Sept. 1655 and the reference to the 'great employment in building (work being now very plentiful and still increasing)' . . . allowing an extra apprentice to be recruited by each master. See also James, *Social problems*, pp. 74, 173. The Masons' Company recruited an unusually large number of apprentices between 1655 and 1657: Knoop and Jones, *London mason*, p. 92.

<sup>58</sup> The rate of erection of private dwellings 'greatly slackened' after the autumn of 1670. Immigration to London of building labourers from throughout the country interfered with work in the Royal Dockyards in 1667: see Bell, *Great Fire*, pp. 276-9. In the immediate aftermath of the Fire, Pepys made the very modern sounding complaint that 'my glazier, indeed, is so full of work that I cannot get him to come to perfect my house': Latham and Matthews, eds., *Diary*, VII, pp. 292-3.

<sup>59</sup> The 75th percentile was used in preference to the maximum value, since the latter often included some extreme and atypical rates.

Table 2. *Wage rates of London craftsmen (d. per day)*

	Craftsmen			Bridge House masons summer rates
	3rd quartile	modal rate	median rate	
1570-9	16	16	16	
1580-9	16	16	16	
1590-9	16	16	16	
1600-9	19.95	18	18	16
1610-9	20.2	20	20	18 to 20
1620-9	24	24	24	20 to 22
1630-9	30	30	29	22 to 24
1640-9	30	30	30	24 to 26
1650-9	36	30	30	30
1660-9	36	36	36	30
1670-9	36	30	30	30
1680-9	32	30	30	30 to 32
1690-9	36	30	30	30 to 32
1700-9	32	32	32	
1710-9	32	30	30	

Sources: Craftsmen's wage rates taken from sources described in appendix. The wage rates for the Bridge House masons, presented for comparative purposes, are taken from Knoop and Jones, *London mason*, p. 63, n. 1, which does not give the same periodization.

in the 1650s and particularly in the 1660s, increasing pay differentials found in the London construction industry, possibly as a result of labour shortages, or merely that it is exceptionally difficult to pick out by any mechanical means a prevailing rate for building craftsmen at a time of considerable volatility in the labour market.<sup>60</sup> After all, although their experience may not be typical, it is notable that masons at the Bridge House, who may not have experienced comparable employment conditions and who were often paid at a lower rate than other London craftsmen, apparently did not experience the 1660s rise.

The relative stability of the wages of labourers at 20d. a day after the Restoration would indicate, if the historic ratio of 3:2 or 1.5 identified by Phelps Brown and Hopkins and confirmed by Rappaport holds, that the 'correct' rate for building craftsmen should be 30d. rising to 36d. in the later 1690s holding the level of skill and experience constant (see table 1).<sup>61</sup> In fact comparison of the modal rates of both sets of workmen indicates that the ratio between the two may have been *diminishing* in the later seventeenth century, reflecting the rise in labouring wages but the retention of the 30d. modal craftsmen wage until well into the eighteenth century. It should be noted again, however, that it is entirely possible that the method employed here is less sensitive to increasing pay differentials over time. After all, reference to figure 2 shows that some craftsmen were receiving 36d. per day from the 1650s to the early eighteenth century, but they did not predominate in the sources used, and the modal value was the 30d. rate. That the modal rate might have been the prevailing one, however, is suggested by the fact that masons at the Bridge House, although paid at

<sup>60</sup> Deducting winter wage rates from the values in tab. 2 did not affect the decadal values significantly.

<sup>61</sup> Phelps Brown and Hopkins, *Perspective*, pp. 8-10; Rappaport, *Worlds within worlds*, pp. 401-7.

somewhat depressed rates before 1640, were paid the modal values described here from the 1650s (see table 2).<sup>62</sup>

It seems unlikely from this survey of wage rates that any divergence of wages between skilled craftsmen and their less skilled labourers can be identified in the 'high wage' economy of London. Indeed if modal or median rates are used for craftsmen there is a suggestion of a convergence rather than Woodward's divergence, at the end of the seventeenth century.<sup>63</sup> It would be rash, however, given the differentials within the building trade, which may have widened in the later seventeenth century, to make any confident statements about the relative movements of labourers' and craftsmen's wages.

The notion that pay differentials within the building trades of London may not have remained constant during the seventeenth century is supported by comments made by the historians of the London masons. Knoop and Jones argued that the seventeenth century saw a marked increase in contracting in the masonry trade, the later part of the century being described as 'the age of the great mason-contractor', and went on to describe the increasing specializations found within the trade, from overseers and foremen, shopkeepers, stone merchants, journeymen, apprentices, and the contractors.<sup>64</sup> Overseers and foremen might receive wages greatly in excess of the prevailing rate; some mason overseers are said to have been paid 5s. 4d. per day for work on Hampton Court while the chief bridge masons were also paid well in excess of the prevailing rate for skilled men.<sup>65</sup> Contractors proper might derive their profits from the supply of raw materials and labour, rather than from any daily rate at all, so that an increase in contracting in the construction industry might remove the highest paid craftsmen from the surviving bills and accounts entirely. Although masons were probably unusual in the extent of contracting, some bricklayers and carpenters increasingly became involved in building speculation in the later seventeenth century.<sup>66</sup> By the eighteenth century Campbell commented on the potentially ruinous practices of masters in the construction industry, instancing the bricklayer:

He works by the Yard; that is, is paid by the Employer so much for every Yard of Brickwork, either with or without the Materials; and is a very profitable Business; especially if they confine themselves to work for others, and do not launch out into Building projects of their own, which frequently ruin them. . . . [He added later that Carpentry too] is by no means despicable in respect to its Profits: The Master is paid so much for his Stuff by the Foot, and he and his

<sup>62</sup> Knoop and Jones, *London mason*, p. 63, n. 1. The dates for these rates do not correspond exactly with those used in tab. 2.

<sup>63</sup> Woodward, 'Early modern north', pp. 34-6, 40-1.

<sup>64</sup> Knoop and Jones, *London mason*, pp. 18-66, esp. p. 39.

<sup>65</sup> *Ibid.*, pp. 35-7.

<sup>66</sup> See, for example, Summerson, *Georgian London*, pp. 69-79 and Earle, *Middle class*, p. 28. For an example of a carpenter paid for surveying work, see the vestry minutes of St. Martin's-in-the-Fields, City of Westminster Archives Centre, F2005, fo. 292, 28 April 1703: 'Ordered that Mr Thomas Rathbone, Carpenter be desired to take upon him the Surveying of the houses now in building in St Martins Lane & Hemings Row, to see that the builders perform their respective Articles, And tht he have copenes of the same and five Guineas for his Paines to be paid by the Churchwarden'.



Men so much a Day for their Labour. . . . Both Carpenter and Joiners are Undertakers in Building as well as the Master-Bricklayer; and are liable to split upon the same Rock of Building-Projects.<sup>67</sup>

In addition to possibly increasing differentials at the top end of the scale in some branches of the construction industry, the peculiar conditions in London following the Fire might have depressed the wages of skilled craftsmen, by drawing more of them into the capital than could be absorbed after the initial spurt in rebuilding activity had subsided. Certainly there were complaints about the unemployment of such workers caused by a tightening of employment restrictions after the need for immigrant labour had declined after 1670.<sup>68</sup>

The money wages of building craftsmen and their labourers, then, roughly doubled in the course of the century. Despite the prevailing high wage economy, there does not appear to have been any divergence between the rates found for craftsmen and for building labourers—indeed there may even have been a convergence for a period after the Restoration. This is despite the fact that there must have been strong demand for skilled labour, both from the need to rebuild after the Fire, and also in response to the growing real incomes of the middling sort in London.<sup>69</sup> This failure of skilled wage rates to rise may be explained by the all too successful recruitment of skilled labour to the capital after the Fire. Whatever the case, the ratio of 3:2 between skilled and semi-skilled labour remained roughly the same in the London of the eighteenth century as it had in the sixteenth and for most of the seventeenth century and, with the overall picture in mind, it would clearly be unwise to place much interpretative weight on short periods when the ratio changed temporarily.<sup>70</sup>

### III

Nominal wage rates moved upwards in the capital with some frequency. Changes in the prevailing rate for labourers, in our period, occurred in the 1590s; during the 1610s it moved up again from 12d. to 14d., and to 16d. in the early 1630s. Further upward movement in money wages occurred in the early 1640s and again in the mid-1650s, by which time labourers commonly received 20d. per day. That rate prevailed until, after some instability in the 1690s, it reached 24d. by the early eighteenth century. It is harder to attach even that level of precision to the movement of craftsmen's wages, but that group seems likewise to have experienced wage rises in the 1590s and in the years 1607-11, and certainly from 1614 to 1617 when wage rates moved from 20d. to 24d. Thereafter, the modal rate varies between 24d. and 30d., but 30d. seems to have been established as the prevailing rate for skilled workmen by the mid-1630s and it remained thus until the

<sup>67</sup> Campbell, *London tradesman*, pp. 159-61.

<sup>68</sup> Bell, *Great Fire*, p. 279.

<sup>69</sup> Earle, *Middle class*, pp. 269-301; Weatherill, *Consumer behaviour*, pp. 43-51, esp. p. 50 where the uniquely rapid expansion in ownership of consumer durables up to 1725 is reported for the capital.

<sup>70</sup> See the rates presented by Rappaport for the sixteenth century: *Worlds within worlds*, pp. 401-7; Schwarz, 'Standard of living', pp. 36-7.

mid-1650s when many craftsmen began receiving 36d. a day, a rate which was not, apparently, sustained beyond the 1660s, when the modal rate fell back to 30d.<sup>71</sup> Considerable instability in the wages of craftsmen occurred from the mid-1680s, although Gilboy's figures suggest that a higher rate may commonly have prevailed by the early eighteenth century.<sup>72</sup>

Why did wages move and what determined the timing of such movements? The rates might be influenced by the interaction between demand and supply of labour (including the structure and internal organization of the skilled labour force), the force of custom, and statutory regulation. Clearly one must concur with Woodward that any conclusions about wage rate movements must remain tentative given the paucity of evidence, and the explanations which follow must perforce remain largely inferential.<sup>73</sup>

Many wage rate rises in the capital were clearly associated with periods of high prices, and therefore reflect the determination of workers to secure better rates in times of hardship and the willingness of employers to pay higher rates for the sake of social or political stability and maintaining labour productivity. Food price inflation continued in the capital until the mid-seventeenth century. London bread prices were unusually high in 1594-7,<sup>74</sup> in 1629-30, and spectacularly so in the late 1640s and in the 1690s, all periods when money wages moved upwards. In the sixteenth century as in the seventeenth it was indeed the case that, 'wage rates . . . were very sensitive to sharp increases in prices'.<sup>75</sup> That being said, not every price rise led to an immediate reaction on the part of employers and employees. High bread prices in 1661 had no impact on wage rates and the same could be said for peaks in bread prices in 1708/9.<sup>76</sup> The employing classes, too, might be instrumental in raising wage rates in response to dramatic price rises, perhaps particularly so in the politically sensitive capital, and especially in times of political instability. The price rises of the late 1640s prompted the House of Commons to ask the Lord Mayor to raise the wages of artificers in the capital 'for their better relief and subsistence in these dear times'.<sup>77</sup>

Why wage increases were sustained is more difficult to determine. It may be that, as Woodward has suggested, when money wages became established at a new level, they quickly became 'customary' and workers were reluctant to accept lower rates when prices fell again. And it may be, too, that such rises in the prevailing rate were sometimes long overdue and that price rises merely acted as a trigger. Wrigley and Schofield's 'smoothing' of wage rate data is, indeed, predicated on such a premise, since they assume that such

<sup>71</sup> See above, pp. 278-80.

<sup>72</sup> Schwarz, 'Standard of living', p. 36, indicates that wage rates for bricklayers might have reached 36d. a day by 1717.

<sup>73</sup> Woodward, 'Early modern north', p. 23.

<sup>74</sup> For the 1590s in the capital, see Archer, *Pursuit of stability*, pp. 149-203, esp. pp. 198-203; Power, 'Crisis' of the 1590s'; *idem*, 'Social and demographic dislocation'.

<sup>75</sup> Rappaport, *Worlds within worlds*, pp. 147-8.

<sup>76</sup> For London bread prices see Mitchell and Deane, *Abstract*, pp. 497-8. Food prices in seventeenth-century London are the subject of current research by this author.

<sup>77</sup> James, *Social problems*, p. 175. This may, of course, have reflected M.P.s' awareness of the complaints of the local workforce.

abrupt rises in wage rates did *not* actually reflect any genuine rise in earnings.<sup>78</sup> A prevailing rate for the job in the capital was a useful guide for employees and employers alike, and cases can be found not merely of workers defending particular rates of pay but also of employers reducing bills in which the labour costs were thought extraordinary.<sup>79</sup>

Employers, however, were naturally more eager than employees to adjust wages to the prevailing cost of living when that fell, although there is little sign that they were ever successful in London. The wage assessments made for later sixteenth-century London bore little resemblance to the prevailing price of labour, which is unsurprising since those of 1563, which at that time were not unrealistic, were reissued without significant adjustment until 1589. Thereafter, apart from tentative moves made in 1607, only in 1655 was any specific attempt made by the city authorities to regulate wages in the capital.<sup>80</sup> The assessment made that year was in specific response to the lower cost of living in the early 1650s. After the disasters of the late 1640s, when the price of bread had reached 9d. per 4lb. loaf, it slumped to just under 4d. in 1653-4. The assessment proclaimed maximum rates only for the wages of those in the construction industry and for carmen, 'respecting the plenty of the present time, and the Cheapnesse of all sorts of provisions (praised be to God for the same)': whether the proclamation had any impact over and above that of market forces on wage rates is not known. The rates it prescribed were already outdated for labourers, since they were limited to 16d. when the prevailing rate rose from 18d. to its 30-year plateau of 20d. in precisely these years. For skilled craftsmen the top rate of 30d. was far more realistic, but, as has already been established, from the mid-1650s until the end of the 1660s the modal rate encountered was 36d. Thereafter, one supposes that market forces rather than memory of the 1655 proclamation combined to bring the prevailing rate down again to 30d.<sup>81</sup>

Movements of wage rates in the capital did not respond to overt pressure from employers, but how did they react to periods when supply of labour failed to match the demand for it? The labour shortages of the mid-sixteenth century have been well documented by Rappaport and others, but can similar periods be identified for the seventeenth-century capital?<sup>82</sup> Short-term labour shortages must have been caused by exceptional outbreaks of violent bubonic plague in London. Such serious epidemics, however, seem to have left relatively few traces in the record of money wages,<sup>83</sup> probably

<sup>78</sup> Wrigley and Schofield, *Population history*, pp. 638-9.

<sup>79</sup> For the eighteenth-century riots against Irish labour see above, n. 45. See London School of Economics (hereafter L.S.E.), Bedford household accounts: Coll. Misc. 147, box I/E86, bill dated October 1672 for plasterers' work at Bedford House where the steward noted that the craftsman had charged 4d. per day more than the prevailing 20d. rate for his labourer's wages. See also box I/E109, 1673: 'Abated of this bill for the Exsterordenary Rates set doone for wages tenn shillings'.

<sup>80</sup> Roberts, 'Wages and wage-earners', pp. 345-95. For the meeting of J.P.s with wardens of London companies in 1607, see *ibid.*, pp. 300-15. For the sixteenth century, see also Rappaport, *Worlds within worlds*, p. 95.

<sup>81</sup> See above, pp. 270-1.

<sup>82</sup> Rappaport, *Worlds within worlds*, pp. 10, 87-90, 95, 145-8, 238-9.

<sup>83</sup> For London plague years, 1592-3, 1603, 1625, 1636-7, 1665, see Finlay, *Population and metropolis*; Slack, *Impact of plague*, esp. pp. 144-69. For some high rates in the plague of 1636 and 1665 see J. Boulton, 'Constructing a wage series for building labourers' (unpub. paper delivered to Social Science History Association, New Orleans, 1987, deposited in library of Cambridge Population Group), p. 14.

because the disease emptied houses and paralysed building activity, reducing the demand for, as well as the supply of, labour. The plagues of 1636-7, and especially of 1665 may have had more effect since their impact was concentrated most heavily in precisely those suburban areas of the capital where building workers and their labourers were concentrated.<sup>84</sup> The labour force in the capital, as in Woodward's northern towns, however, was rapidly replenished by immigration.<sup>85</sup>

Other reasons for labour shortages might have exacerbated the effects of price rises or indeed helped to alter wage rates on their own. It is at least conceivable that the periods of warfare in the 1590s, the 1620s, the 1640s, and between 1688 and 1714 might have affected the metropolitan labour market by tightening it during periods of recruitment and loosening it when the surviving troops were demobilized.<sup>86</sup> The upward movement in wage rates during the 1640s might have owed something to Civil War recruitment among the capital's working population while the instability apparent for wage rates in the later seventeenth and early eighteenth centuries might be due to the recruitment of a significant number of Londoners into the armed forces.<sup>87</sup> Lastly, extensive fire damage undoubtedly caused an immediate and drastic labour shortage in the capital, especially coming after the 1665 plague, but the frantic and highly successful efforts of the civic authorities to augment the labour force in the aftermath of the disaster meant that by the 1670s there were fears that the newcomers recruited so hastily might be severely under-employed, and London companies apparently attempted to reimpose restrictions on the employment of unfree or foreign labour.<sup>88</sup>

#### IV

Money wages in the capital, then, make an instructive study. The forces influencing the level and pattern of nominal wages were clearly wide ranging and extended beyond the less important ones of custom and wage regulation to the (frequently changing) balance between the supply of labour and the demand for it, and to the structure and organization of the workforce and the identity of the employer. There is some evidence that a methodology which does not build in wage-rate stability can identify short periods when

<sup>84</sup> For the residential distribution of building workers, see above, p. 270, and Woodward, 'Early modern north', p. 30. For the uneven impact of the 1665 plague, see Slack, *Impact of plague*, pp. 151-69, esp. p. 162, tab. 6.3. Mortality in the latter two epidemics was more than twice as severe in the poor suburban areas of the city as in the city centre. Plague mortality was more evenly distributed across the city in earlier epidemics.

<sup>85</sup> Woodward, 'Early modern north', pp. 28-32.

<sup>86</sup> More information is needed on this subject, especially for the period before 1688, but Power notes that nearly 5,000 men were recruited for war against Spain in 1585-9 and a further 4,000 men were demanded from London for overseas service between 1594 and 1597: Power, '“Crisis” of the 1590s', p. 382. Such figures are insignificant when compared with the heavy recruitment and equally heavy demobilizations probably experienced by the metropolis in the early eighteenth century: see recruitment figures cited by Schwarz, *London in an age of industrialisation*, pp. 95-101.

<sup>87</sup> See Boulton, 'London widowhood', pp. 342-3.

<sup>88</sup> See above, p. 280. The architect of Clarendon House noted early in 1666 that for carpenters during the recent plague 'at this time the town was highly infected, the workmen everywhere died' and that two of the master brickmakers on the project had died in succession, causing a rise in the cost of bricks from 8s. 6d. to 15s. per 1,000: Knoop and Jones, *London mason*, p. 5, n. 1.

money wage rates, for skilled workmen, moved in a downward direction. Allowing for such changes still enables us to identify a doubling of the money wage in seventeenth-century London.

London workers continued to be the most highly paid, at least in terms of money wages, in England, and this may explain the continued immigration into the capital even when the population of the country itself grew only very slowly after the Restoration. Labourers in the capital seem to have been paid usually at twice the rate of their counterparts in northern towns throughout the seventeenth century.<sup>89</sup> Only for building craftsmen in some 'high wage' urban economies such as Hull and Beverley did such differentials apparently erode in their favour over the seventeenth century, although the migration patterns of such towns do not correspond neatly with these wage rate differentials.<sup>90</sup> Throughout the seventeenth century, for those seeking high money wages it was nearly always worth making the trip to London.

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<sup>89</sup> Woodward, 'Early modern north', pp. 40-1. For the smaller differential between London and southern workmen see also Phelps Brown and Hopkins, *Perspective*, p. 11; Chartres, 'Food consumption', p. 171.

<sup>90</sup> Woodward, 'Early modern north', p. 40. Craftsmen in Beverley received 8d. per day in 1600-9 as against 18d. in London, but were getting between 18d. and 23d. in 1690-9 as against perhaps 30d. in London. In Hull labourers were paid 10d.-12d. in the former decade and between 21d. and 24d. in the latter. Whether such differentials actually affected migration behaviour, of course, is difficult to determine. But one recent study tabulates the observed and expected number of apprentices that towns and cities sent to London in the later seventeenth century. Of those towns studied by Woodward and listed also by Kitch, Chester, Lincoln, Newcastle, and York—a mixture of supposed high and low wage economies—exported more apprentices to the capital than would have been expected given their population size while Hull alone sent (massively) fewer: Kitch, 'Migration', pp. 235-40.

## APPENDIX: Annual wage rate series, based on modal values, for London labourers and building craftsmen

The following manuscript sources were used in this study. In this list, the manuscript location and the percentage share of the total wage data contributed are placed in parentheses after each source. More detailed manuscript references are available from the author. These sources supplied some 2,700 individual wage rates: Treasurers' Accounts, Middle Temple (Middle Temple, 52%); Carpenters' Company, Wardens' Accounts and miscellaneous bills (Guildhall Library, 26%); Charterhouse Quarter Rent Books (Greater London Record Office, 14%); Westminster Abbey and School, miscellaneous bills and Stewards' Accounts (Westminster Abbey Muniment Room, 2%); St Thomas's Hospital, Treasurer's Weekly Payments (Greater London Record Office, 2%); Churchwardens' Accounts of St Martin's-in-the-Fields (City of Westminster Archives Centre, 1.0%); Stationers' Company, Wardens' Accounts (microfilm edition of original documents in Stationers' Company Hall, 0.9%); Tallowchandlers' Company, Wardens' Accounts (Guildhall Library, 0.6%); Coopers' Company, Wardens' accounts (Guildhall Library, 0.5%); Drapers' Company, Wardens' Accounts and Building Accounts (Drapers' Hall, 0.5%); Grocers' Company, Wardens' Accounts (Guildhall Library, 0.4%); Bakers' Company, Masters' and Wardens' Accounts (Guildhall Library, 0.4%).

The following rates are based on the modal values for each year. Figures with superscript *a* are interpolated from the values on adjacent years. Those with superscript *b* are average values, used when the mode could not be calculated.

<i>Year</i>	<i>Craftsmen</i>	<i>Labourers</i>	<i>Year</i>	<i>Craftsmen</i>	<i>Labourers</i>
1574	16	10	1625	30	14.75 <sup>a</sup>
1575	14	10	1626	20 <sup>b</sup>	15.5
1576	15 <sup>a</sup>	10 <sup>a</sup>	1627	24	15
1577	16	10	1628	24	16
1578	15.8 <sup>b</sup>	11	1629	24	16
1579	16	10	1630	24	16
1580	16	10	1631	24	16
1581	16	10 <sup>a</sup>	1632	30	16
1582	15.4 <sup>b</sup>	10	1633	24	16
1583	17	10 <sup>a</sup>	1634	30	16
1584	16	10	1635	26.1 <sup>b</sup>	17 <sup>b</sup>
1585	16 <sup>a</sup>	10 <sup>a</sup>	1636	24	16
1586	16	10	1637	24	16
1587	16 <sup>a</sup>	10 <sup>a</sup>	1638	30	16
1588	16	10	1639	30	16
1589	16 <sup>a</sup>	11 <sup>a</sup>	1640	30	18
1590	16	11 <sup>a</sup>	1641	30	14
1591	16	11 <sup>a</sup>	1642	30	16
1592	16 <sup>a</sup>	11.5 <sup>a</sup>	1643	24	18
1593	16	12	1644	27 <sup>a</sup>	16
1594	16	11.5 <sup>a</sup>	1645	30	18
1595	18	11	1646	24	18
1596	17 <sup>b</sup>	11 <sup>a</sup>	1647	30	18
1597	18	11	1648	30	18
1598	16	12	1649	30	18
1599	18	12	1650	30	18
1600	18 <sup>a</sup>	12 <sup>a</sup>	1651	30	18
1601	18	12	1652	30	18
1602	18	12	1653	30	20
1603	18	12	1654	30	18
1604	19 <sup>a</sup>	12 <sup>a</sup>	1655	36	20
1605	19 <sup>a</sup>	12 <sup>a</sup>	1656	36	20
1606	20	12	1657	36	19 <sup>b</sup>
1607	18	12 <sup>a</sup>	1658	30	20
1608	20	12	1659	36	20
1609	18	12	1660	36	20
1610	20	12	1661	36	20
1611	20	12	1662	36	20
1612	20	14	1663	36	20
1613	20	14	1664	36	20
1614	20	13	1665	30	20
1615	22 <sup>a</sup>	14	1666	36	20
1616	22 <sup>a</sup>	13 <sup>a</sup>	1667	36	20
1617	24	12	1668	30	18
1618	24	12	1669	36	20
1619	27 <sup>a</sup>	13.25 <sup>a</sup>	1670	36	20
1620	30	14.5	1671	36	20
1621	24	13 <sup>b</sup>	1672	36	20
1622	24	14	1673	30	20
1623	27 <sup>a</sup>	14.75 <sup>a</sup>	1674	36	18
1624	27 <sup>a</sup>	14.75 <sup>a</sup>	1675	32	18

Year	Craftsmen	Labourers	Year	Craftsmen	Labourers
1676	30	20	1699	31 <sup>b</sup>	24
1677	30	20	1700	31.5 <sup>a</sup>	24 <sup>a</sup>
1678	30	20	1701	32	24
1679	30	20	1702	36	24
1680	30	20	1703	34 <sup>a</sup>	25 <sup>a</sup>
1681	30	20	1704	34 <sup>a</sup>	25 <sup>a</sup>
1682	30	20	1705	34 <sup>a</sup>	25 <sup>a</sup>
1683	30	20	1706	32	26
1684	32	20	1707	32	26
1685	32	22	1708	31 <sup>a</sup>	25 <sup>a</sup>
1686	30	18	1709	30	24
1687	30 <sup>b</sup>	20	1710	30 <sup>a</sup>	24 <sup>a</sup>
1688	36	22	1711	30 <sup>a</sup>	24 <sup>a</sup>
1689	30	20	1712	30	24
1690	32	22	1713	30	22
1691	36	20	1714	33 <sup>a</sup>	23 <sup>a</sup>
1692	36	20	1715	33 <sup>a</sup>	23 <sup>a</sup>
1693	36	24	1716	33 <sup>a</sup>	23 <sup>a</sup>
1694	36	24	1717	33 <sup>a</sup>	23 <sup>a</sup>
1695	30	24	1718	36	24
1696	30	22	1719	36	24
1697	30	22	1720	36 <sup>a</sup>	24 <sup>a</sup>
1698	30	22	1721	36	24

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