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SEVEN CENTURIES OF UNREAL WAGES

The Unreliable Data, Sources and Methods that have been used for Measuring Standards of Living in the Past

Edited by John Hatcher and Judy Z. Stephenson

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Introduction

John Hatcher and Judy Z. Stephenson

The welfare and quality of life of people in the past is one of the most important areas of historical enquiry and the standard of living of populations is one of the leading measures of the economic performance of nations. Wages, and the living standards that are derived from them, have been at the heart of economic and social history since the nineteenth century and have featured prominently in many of the discipline's great controversies and debates. Just as more than half a century ago Hartwell, Hobsbawm and a host of others disagreed about the welfare of the working classes in industrial revolution England,[1] so Postan, Harvey and Hilton disputed the severity and causes of the subsistence crises of the early fourteenth century.[2] Statistics claiming to measure living standards by the price of labour and its subsistence are necessary underpinnings for economic ideas about relative development and 'poverty and progress'

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across the globe, commentaries and explanations of the advancement of northern Europe and the backwardness of the south after 1700, the speed of technological change and the Great Divergence between Asia and north-western Europe. Indeed, it has increasingly been argued that measurements of real wages are all that is needed to work out an international development pecking order, since '[a] high wage economy was likely to be industrialized; a low wage one was not'.[3]

Wages and real incomes also supply the statistical backbone for enduring Malthusian ideas about the lack of progress before industrialisation, for studying inequality and whether growth was led by consumption or production.[4] They have played a crucial role in helping to provide explanations of many complex areas of social and demographic history, such as the reasons why populations rise and fall and the relative roles played by birth and death rates, the impact of industrialisation on the welfare of the working classes, the causes and consequences of changes in diet, nutrition and health, the incidence of social protest, the dispensing of charity, the operation of the poor law and much more besides.

Yet, how reliable are the wage and income data that for decades have provided the long-run measurements of the standard of living that underpin such vast sweeps of history? The chapters in this volume add materially to a rising tide of evidence and argument that indicate that they are unreliable and beset by weaknesses, biases, inaccuracies and misapprehensions. While also rehearsing long-standing criticisms, these chapters present a wide range of powerful new evidence and reasons why the virtually universal dependence on the now conventional historical wage rates and real wages, embodied in such recent landmark works as Robert Allen's 2001 study of the real wages of European building workers from the middle ages to the First World War, Gregory Clark's 2007 study of the real wages of English casual agricultural labourers from 1209 to 1869, and the Great Divergence debate, is misguided.[5] At its core, this book challenges the fundamentals of the construction of 'real wages' across seven centuries and many countries of the world, and questions whether the sources and methodology currently used are capable of providing reasonably accurate knowledge of the welfare of populations of the past. It also suggests a range of improved methods and new data for revising the existing series and compiling new.

Prices and consumption are, of course, essential components of any calculation that turns money wages into real wages and thence into standards of living, and they receive attention in many of the following chapters. However, the balance of this book is tilted towards the study of wages and the income derived by working people from their labour. This is because the need for substantial improvements in the recording of prices, the analysis of household budgets and the construction of baskets of goods tailored to the consumption habits of people with differing levels of income has been widely accepted and is being addressed, whereas knowledge and understanding of wages and incomes have lagged behind as historians and economists cling to notions developed in the 1950s and before of the representativeness of day wages largely restricted to the fields of building and agricultural labouring.[6]

Clear bias in the most popular sources has habitually been ignored in the search for more data to feed advancing econometric modelling. The accounts kept by big, rich institutions are the most consistent, continuous and prolific for the recording of wages and prices, but unfortunately they are not representative of the generality of employers and employment or of consumers and consumption. The character of these institutions meant that they tended to hire certain types of workers to perform certain types of work on particular terms of employment, and to purchase and consume goods and services that were exceptional in quantity, kind and price. Moreover, the extraction of data from the accounts of the past requires considerable care because the paymasters, comptrollers, auditors, bailiffs and treasurers who kept them were not adhering to any general accounting standards. There were no reporting conventions, nor were there any regulated bodies who monitored the gathering of consistent and correct statistics. Records were kept by officers for the purposes of their own organisations, and the results are as varied and as idiosyncratic as one might expect. However, all too often the difficulties inherent in such records have been brushed aside as the burgeoning literature continues to treat them as if they provide accurate records of pay and earnings.

The easy availability of a relative abundance of seemingly precise and consistent data in the form of a male daily wage paid in cash has triumphed over confronting the formidable difficulties set in the way of

gaining a more accurate picture by tackling sub-contracting, piece rates, bonuses, non-pecuniary rewards and supplements, by-employments, seasonal variations in the availability of work and the wages received for it, the substantial contributions made to most household budgets by the earnings of women and children, the subsistence and profits made from holding land and livestock and much more besides. The over-reliance on what are taken to be a precise and easily manipulated male day wage has also led to an exaggeration of the importance of wages and wage labour, especially in pre-modern centuries and economies. Not only was a considerable amount of hired labour, and in some industries the majority, paid by the piece rather than by the day, the bulk of labour powering huge swathes of the economy, and in particular farming, came from family enterprises and the self-employed and relied heavily on female labour as well as male.[7] More than this, the social, moral and customary context of the wage was vitally important. Even when the records state the precise sum paid for a day's work, it does not necessarily mean that it was paid promptly and fully in cash, or that it comprised the whole of the transaction.[8]

The study of historical living standards has been blighted by a widening gulf between the ability to process huge quantities of data and the quality of the data that are processed. Since the 1960s many fields of economic history have been revolutionised by 'cliometrics'—the use of statistics, economic theory, econometric analysis and data processing—to marshal and interpret huge accumulations of data in order to resolve great historical questions. The cliometric revolution has always had over-enthusiastic promoters who have asserted that 'what cannot be counted does not count', a sentiment that if adhered to would leave vast gaps in the historical canvas, as well as its extreme detractors who have opposed and shunned all serious quantification. A more balanced judgement recognises that cliometrics has achieved a great deal and has the potential for doing further good in the future. At its best it has brought strong economic reasoning, a ruthlessly empirical focus, and fresh insights into long-settled ideas and debates in economic and social history which, when combined with appropriate innovative statistical techniques, have opened up new analytical possibilities. Approaching the third decade of the twenty-first century, it is easy to forget that statistical techniques now

taken for granted were simply not conceived, let alone available for the most of the twentieth.

Many of these advances have placed renewed emphasis on the fundamental role played by wages and prices in the performance of economies. But, as the historiography demonstrates, the answers cliometrics produce are only as good as the quality of the data fed into the process and the judgment exercised by those who do the processing. As the tools of econometric analysis have advanced so has the appetite for data to practise on. This has often led to a lack of discrimination in its collection, with quantity taking precedence over quality. Unfortunately, many of the collections that continue routinely to be used for the analysis of living standards were produced in the late nineteenth or early twentieth centuries by teams of research assistants who combed rapidly through masses of historical records extracting brief entries of wage payments but little of their context, while some data in well-used collections have only ever been presented in processed or manipulated form.

Notwithstanding these and other limitations, the aims of those who would see wages as indicators or drivers of economic and social development have become ever more ambitious. Recently, Jan Luiten van Zanden has claimed that 'Relative prices are the DNA-prints of an economy. They are basic units of information that reflect and define its structural features. They tell us about relative scarcities, and are the incentives that guide economic behaviour.'[9] Yet, even if against all the odds, it were to be found that wages and prices in the past did play a role in the operation of economies and societies comparable to that played by DNA in life on earth, the current wage and price data do not come anywhere near meeting the accurate observable stable constructs required to act as economic and social DNA. This deficiency is all the more apparent in van Zanden's study because his data are not confined to the verified wages of construction workers in a single country within a restricted time period, but include wages and wage differentials of highly variable accuracy extracted from a miscellany of sources of uneven quality and consistency spanning the six centuries after c.1300 in more than a dozen European countries and regions and a number of non-European countries, such as India, China, Japan, Russia, Korea and Indonesia.

* * *

Paradoxically, the publication in the mid-1950s of two papers by Henry Phelps Brown and Sheila Hopkins presenting seven centuries of the daily wage rates of building craftsmen and labourers and the prices of a range of basic consumer goods inspired a surge in the use of their and similar data to calculate real wages and living standards despite the fact that the authors made clear that they could serve no such purpose.[10] However, in the last few decades some important, albeit relatively neglected, contributions to wage scholarship have amplified and extended the reservations of Phelps Brown and Hopkins. Donald Woodward's seminal contributions in the 1980s and 1990s to the history of the building industry and its workforce are reviewed later in this introduction and elsewhere in this book, and in 1996, while presenting a new series of London wages, Jeremy Boulton pointed out that Phelps Brown and Hopkins' observations for labourers' wages in the sixteenth and seventeenth century averaged but three a year.[11] In 2003, a collection of essays on the cultural and social context of wages edited by Peter Scholliers and Leonard Schwarz (from which we draw an important essay below) stressed non-pecuniary reward, credit, subsistence and social structure among factors that had a profound influence on incomes and welfare.[12] In 2010, Bruno Blonde and Jorg Hanus, in a paper entitled 'Beyond Building Craftsmen', cast doubt on the almost universal use of building workers as representative of 'average' workers by showing that, in the south Netherlands city of 's-Hertogenbosch during the early and mid-sixteenth century, the scale of the decline in the real income of building labourers was 'surprisingly atypical'.[13] Two years later a challenge was made to one of the fundamental tenets of long run living standards by questioning the truly extraordinary levels of real income believed to have been widely enjoyed in the 'golden age' of the fifteenth century, and subsequently new output-based estimates of welfare have deemed GDP per head in the period to have risen far less vertiginously than prevailing views of real growth.[14] In addition, recent studies by Jane Humphries and Jacob Weisdorf have opened up important new perspectives on real wages by collecting and interpreting data on the remuneration of farm servants on annual contracts. They reveal that the proven annual earnings of farm servants lagged for

centuries far below the speculative amounts commonly assumed to have been earned each year by casual agricultural labourers, thus casting doubt on the common assumption that casual agricultural labourers were able to find full employment year-round at the high wage rates reported by Thorold Rogers, Gregory Clark and others. Humphries and Weisdorf have also helped to close the yawning gap in knowledge of women's wages by providing a long-run series of the remuneration of female farm servants.[15]

John Hatcher's opening chapter sets the tone for this volume by launching a full-frontal assault on the virtually universal dependence on illusory estimates of living standards across many centuries and a multitude of countries. It demonstrates, using largely English evidence, that these crucial measures have been built on extremely narrow and flimsy foundations consisting of unreliable long-run series of the day wages paid to males employed on large-scale 'heritage' building projects and to predominantly part-time agricultural labourers that have been converted into earnings by combining them with casual and conflicting speculations on the number of days they worked each year. Among the many threads disentangled in this chapter is the misguided belief that these highly-selective data can serve as proxies for average incomes and hence the living standards of whole populations across seven centuries of profound economic and social change. Attention is also drawn to the wholesale neglect of the contribution of wives and children to household income and of the millions of self-employed and non-wage earners to national income.

A damning verdict on the quality of the data used to measure nominal and real wages in pre-modern China is delivered by the chapter by Kent Deng and Patrick O'Brien, 'The Tyranny of Numbers'. This judgment has devastating implications for the debate over the 'when', 'why' and 'how' of the 'Great Divergence' in economic development between Western Europe and the Chinese Empire, which has become increasingly centred on wages. Despite the fact that the proportion of wage dependent labour in the Chinese workforce was too small to be representative of the labour market or for labour productivity in the economy as a whole, estimates of the purchasing power of the pay for an unskilled labourer have repeatedly been used as a shorthand for gauging the degree

of industrialisation and working out a definitive international pecking order. Iconoclastically, the authors conclude firmly that 'most of the evidence recently marshalled for the Great Divergence Debate comparing levels and trends in real wages between Qing China and Western Europe is not fit for purpose' and that 'the assumption that the statistics in print could serve as proxies or plausible conjectures for average standards of living, labour productivities or levels of industrialization could only satisfy those who believe that any number is better than no number'.

The steep decline in the real wages of building workers in eighteenth-century Milan is a long-established phenomenon and their experience has been used in many comparative studies of European living standards to demonstrate that wages were low in Italy. However, Luca Mocarelli's forensic re-examination of the evidence in his chapter, 'What is Wrong with the History of Wages', reveals that the fall in the living standards of Milan builders has been grossly exaggerated. He exposes numerous problems with the sources, which do not record the wages that the building workers actually received and systematically exclude valuable payments in kind and other significant benefits that they enjoyed. What is more, the scale of increase in the costs of subsistence has been substantially overstated by previous historians who used the wholesale prices of grains when in reality it was the retail price of bread that mattered and this rose far less as it was regulated by the city authorities. Mocarelli ends by questioning the sense of building up a picture of living standards in Italy based on wage and price series that are so flawed that the use of averages, interpolations or sophisticated regressions cannot render them more reliable.

Builders' wages occupy a preeminent place in the historiography of living standards and it is a pity that copyright issues have prevented the reprinting in this volume of Donald Woodward's prescient paper of 1981, 'Wage Rates and Living Standards in Pre-Industrial England'.[16] Not only does it contain a wealth of information on the building industry and the working practices and remuneration of its workforce, it concludes trenchantly that, 'A comparison of the daily wage rate earned by building craftsmen, working on large-scale contracts, with the price of a basketful of commodities can tell us little about the fortunes of the majority of

workers in such a society'. Woodward's judgment, based on a thorough investigation of the operation of the industry, showed that typical craftsmen outside of grand building projects were not wage-earners pure and simple but worked on their own account, and commonly employed assistants, supplied raw materials and were paid by the job rather than by the day. Furthermore, such builders usually had significant additional sources of income. Woodward's findings were reinforced and strengthened in his subsequent book, *Men at Work: Labourers and Building Craftsmen in the towns of Northern England, 1450–1750*.[17] Yet, his clear demonstrations of the limitations of builders' day wages have gone largely ignored in the pressing desire to use the bountiful supplies of these data to calculate general living standards. Ironically, the day wages that Woodward provided from northern towns, with strict reservations, were soon averaged and inserted into the standard nominal and real wage time series.

The next two chapters by Judy Z. Stephenson on building in London in the seventeenth and eighteenth centuries confirm and amplify many of Woodward's findings, but they also go much further in providing irrefutable evidence of fatal flaws in the current series of wage rates that substantially overstate the remuneration received by skilled, semi-skilled and unskilled builders at this time. She shows that all the wages recorded by previous historians were not, in fact, 'wages'. They were the amount charged by contractors to clients for 'day work'. Men were paid different amounts varying by skill and building stage. Day work was only one type of building contract. In others, labour was charged for as part of work done, and so the 'day wages' that all pre-industrial English living standards research rests on are accurate neither for the wage, nor the numbers of men or days worked. Stephenson shows in her second chapter that the use of 'building labourers' as representative of the 'unskilled' worker is misleading and exposes a huge gap in our understanding of the skill premium by showing that the real unskilled wage may have been as little as half current estimates.

Turning to the other leading source for the estimation of living standards, the wages of casual agricultural labourers, the next chapter, Craig Muldrew's, 'What is a Money Wage? Measuring the Earnings of Agricultural Labourers in Early Modern England', conducts a persuasive

and highly subversive investigation into the form of the wage for agricultural labour in early modern England and in doing so throws much new light on labourers' earnings. Using a wide range of detailed evidence, including a series of informative case studies, Muldrew undermines the accepted practice that treats the remuneration of casual farm labourers as sums paid promptly in cash, and their real wage as calculable by reference to the cost of a universal fixed basket of food and other consumables which can be precisely presented as an index in long-run series. Instead the acute shortage of small denomination coins reinforced the treatment of the stated money wage as the basis for more negotiable means of payment. The production on many farms of beer, cider, bread, dairy products, vegetables and meat, and the availability of a variety of facilities useful to employees, meant that the provision of food and other benefits in kind, including free or discounted grazing, gleaning, firewood and so on, were commonplace. The credit granted by labourers to employers who delayed the payment of money owed to them, meant that they had in turn to raise credit from those who supplied them with goods and services. It is also notable that the concession of meals and cheap food by farmers to their labourers during periods of high food prices helped to moderate falls in their nutrition and welfare.

Joyce Burnette in 'The Seasonality of Agricultural Employment' examines the variations in employment and wages occurring within the year for day-labourers in the decade 1835–1844. By measuring the number of days worked by men, boys, and female workers each week of the year at eight farms throughout England, she finds that agriculture in the mid-nineteenth century was still a highly seasonal industry. At the peaks, which mostly occurred at the hay or grain harvests, employment was anywhere from 40 to 190 per cent more than average. However, although male wages were highly seasonal in Norfolk, rising 83 per cent during harvest, by this time they were less seasonal elsewhere and overall were not strongly correlated with changes in employment. Burnette's chapter further strengthens scepticism about claims that well-paid year-round work was available for most casual agricultural labourers, a case that also been made by detailed empirical studies by A. Hassell Smith and C. Yamamoto and many others.[18]

The final two chapters span the period from the later middles ages to 1800. 'Unreal Wages' argues that the renowned 'Golden Age' of the fifteenth century has been exaggerated. The surge in the prosperity of the lower orders resulting from high wages, low food prices and easier access to cheap land was undoubtedly extraordinary, but not as prodigious as has customarily been assumed. Furthermore, contrary to the common belief that the economic fortunes of the labouring classes can be taken as a proxy for the living standards of the population as a whole, the scale of improvement in their good fortune was not widely shared by those in the rest of society who did not derive their incomes solely from wages or their subsistence solely from the market. Argument and evidence are also provided that the criticisms made in this chapter of the compilation, interpretation and application of real wage indices have implications that stretch far beyond the fifteenth century.

The title 'Cash, Wages and the Economy of Makeshifts, 1650–1800' neatly summarises the subject matter of the closing chapter by Craig Muldrew and Steven King. It demonstrates how the economic system in this period, and the entrepreneurs who operated within it, was inhibited by a shortage of cash, a labour market that was inextricably tied up within a complex economy of makeshifts and a remuneration system pervaded by customary entitlements and distorted by complex credit networks. The failure of the supply of coinage to keep up with strongly rising population and the rapid growth of wage-earners in the proliferating factories and workshops of the period had a major impact on the form of the wage and on the operation of charity and the poor law which were used to tide workers over the often very lengthy periods while they waited to receive cash. A cash wage paid promptly and in full settlement of the work that had been done was an ideal and largely unrealisable concept.

The evidence, analyses and arguments put forward in recent years and by the authors of the chapters of this book pose formidable challenges to what are among the most crucial and habitually used sets of data employed in the writing of economic and social history across the centuries and the world. If these challenges are judged to be valid, even in part, the ramifications will be considerable. Fortunately, there is substantial scope for the improvement in both the data and the methods applied to them.[19]

Notes

1. The early years of the debate are surveyed in Taylor ed. (1975), *The Standard of Living in Britain During the Industrial Revolution*.
2. Surveyed in Campbell ed. (1991), *Before the Black Death.*
3. K. Deng and P. K. O'Brien, 'The Tyranny of Numbers', Chapter 3 below.
4. Clark (2007), *A Farewell to Alms*, pp. 1–16.
5. Allen (2002), 'The Great Divergence in European Wages and Prices from the Middle Ages to the First World War'; Clark (2007), 'The Long March of History'; Broadberry and Gupta (2006), 'The Early Modern Great Divergence'; Allen et al. (2011), 'Wages, Prices and Living Standards in China 1738–1925 in comparison with Europe, Japan and India'.
6. It should also be noted that the chapters in this book do not deal in detail with alternative measures of the standard of living and welfare, such as height, health, education and forms of government. For these approaches see Crafts (1997), 'Some Dimensions of the 'Quality of Life' during the British Industrial Revolution' and Floud et al. (2011), *The Changing Body: Health, Nutrition and Human Development*.
7. For the vital contribution of female labour see Burnette (2011), *Gender, Work and Wages* and Erickson (2008), 'Married Women's Occupations in Eighteenth-Century London'.
8. See the chapters below by C. Muldrew and S. King and C. Muldrew.
9. van Zanden (2009), 'The Skill Premium and the 'Great Divergence'
10. See below, pp. 23–4, 27, 107, 233.
11. Boulton, (1996) 'Wage Labour in Seventeenth Century London', p. 268.
12. Scholliers and Schwarz eds (2003), *Experiencing Wages: Social and Cultural Aspects of Wage Forms in Europe.* See also the chapters by C Muldrew and S King and C Muldrew below.
13. Blonde and Hanus (2010) 'Beyond Building Craftsmen'.
14. Broadberry et al. (2015), *British Economic Growth 1270–1870*, pp. 257–8, 264
15. Humphries and Weisdorf (2015), 'Wages of Women in England, 1260–1850'; Humphries and Weisdorf (2017), 'Unreal Wages? Real Income and Economic Growth in England'
16. Woodward (1981), 'Wage Rates and Living Standards in Pre-Industrial England'.
17. Woodward (1995), *Men at Work.*

18. Hassell Smith (1989), 'Labourers in Late Sixteenth-Century England'; Yamamoto (2004), 'Two Labour Markets in Nineteenth-Century English Agriculture'.
19. See, for example, below, pp. 45–53 and pp. 123–36.

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2

Seven Centuries of Unreal Wages

John Hatcher

I

Our understanding of wages and living standards from the thirteenth century to the late nineteenth is grossly inaccurate. The prime statistical series on which it rests—the day wages assumed to have been paid to builders and casual agricultural labourers—are riddled with debilitating errors and limitations and undermined by a plethora of unfounded assumptions. The excessive concentration on the pay that these workers received for a day's labour and the promulgation of the beguiling notion that calculations of the purchasing power of that day's pay can somehow enable their standard of living to be charted across the centuries and serve as a proxy for the living standards of the working population as a whole have fostered false narratives of the course of national welfare. Moreover, the tables and figures within which these basic data have been consistently presented and manipulated in long-run series, often without any contextual chronological commentary, have encouraged a false sense of

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continuity across the centuries that disregards the long succession of profound changes that occurred in occupational structures, the distribution of income and wealth, the importance of wage labour, the availability and continuity of employment, the level of supplementary incomes and much more.

A brief summary of some of the common failings and misapprehensions in the manner in which wages, earnings, real wages and standards of living have commonly been collected and calculated, that relate particularly but not exclusively to England, include the following:

- Estimates of national living standards are primarily derived from the daily wage rates of builders working on large-scale projects and of casual labourers hired to work on large farms, but this practice is supported neither by common sense nor by evidence. In fact, these highly selective data do not even provide a sound basis for extrapolating the incomes of the building workforce at large or of the generality of agricultural labourers.
- The great majority of builders did not work on the grand building projects that supply almost all the data used in the dominant wage series. They worked on smaller projects, were commonly self-employed, were remunerated not by the day but by the job and had additional sources of income.
- The incomes of the great majority of casual farm labourers across the greater part of the period cannot be derived from the daily wage they earned when hired. They neither sought nor obtained continuous waged employment as they commonly held land and livestock that contributed subsistence and cash to a household budget that was also boosted by the earnings of wives and children.
- A very substantial proportion of hired agricultural labour was supplied not by casual labourers but by farm servants employed on annual contracts whose total remuneration over most of the period averaged out at a mere fraction of the sums routinely presented as the earnings of casual labourers.
- The long-run wage series on which such heavy reliance is placed create an impression of consistency across centuries, but they have been compiled from a wide variety of sources by a long succession of researchers

who adopted markedly different research methods that significantly affected the quality and uniformity of the data they extracted.

- The day wages recorded in all the leading series are frequently incorrect, being sometimes higher and occasionally lower than those that workers actually received.
- The rates of pay recorded for building workers were for long periods not the wages they received but the enhanced rates that institutions paid to contractors for the labour they supplied.
- Over much of the period the persistent severe shortage of small coins helped to ensure that the nominal daily wages recorded for casual agricultural labourers were rarely paid promptly in full in cash, but usually made up of a negotiated range of payments in kind, concessions and promises to pay.
- The food and drink and other perquisites that were not uncommonly given to workers, especially farm labourers, have been routinely ignored because they are usually difficult to identify and to quantify.
- The 'stickiness' of money wages can be misleading. Food and drink were often used to attract and keep workers when labour was scarce, and to provide them with basic nourishment in times when food was particularly scarce and expensive.
- The widely used series purporting to be the wages of unskilled building labourers are nothing of the sort: they are a conflated series dominated by substantially higher wages paid to the semi-skilled assistants of craftsmen.
- There are no long-term series of the wages paid to the urban unskilled labouring poor.
- The manner in which the day wages of builders are presented and interpreted fosters the false notion that they were fully employed throughout the year and from year to year when the majority, even on large, long-term projects, were employed for short periods.
- Rural wage series fail to take adequate account of seasonal variations in the levels of pay and employment of agricultural labourers and of differences in their skill.
- The increasingly popular assumption that the length of the working year virtually doubled between the later middle ages and the nineteenth century is based on speculation rather than sound evidence.

- The records of a single employer rarely provide the full employment records of their employees, since most worked for a number of employers as well as for themselves.
- The emphasis placed on daily wages in the calculation of living standards is excessive. Before the eighteenth century full-time wage earners comprised less than half of the working population and an even lower proportion of the total amount of labour spent producing goods and services.

It is regrettable that the progress made in recent decades on the expenditure side of the calculation of real incomes has not been matched by advances in discovering what those incomes actually were.[1] In fact, as ever more ambitious claims have been made for the ability of basic wage data to describe and explain an expanding range of economic and social phenomena across the centuries and the countries of the world, so a succession of well-founded warnings about their crippling deficiencies have been brushed aside. Indeed, the most prominent of the current wage-rate databases continue to rely heavily on material compiled by Phelps Brown and Hopkins in the 1950s. who openly confessed the frailties of their seven centuries of builders' nominal wage rates, admitting that down to 1700 they had relied entirely on the work of Thorold Rogers published in the 1880s. They also admit that, although ideally a wage series should be drawn from a single institution in a single location, their data had been drawn from the records of a constantly changing sample of different employers in 14 locations scattered around various southern counties. Furthermore, Phelps Brown and Hopkins stated that although for most of the period before the eighteenth century entries for craftsmen come at the rate of 15 or more a year, those for labourers hover around a paltry 3 a year, and that entries of all kinds fall off greatly after 1660.[2] Nor are such failings restricted to statistics from England; many apply equally or even more forcefully to the collection and interpretation of those produced for other countries in Europe and beyond.[3]

It is time for the multitude of debilitating weaknesses in the core data on wages, incomes and standards of living to be remedied. This chapter draws up an agenda for change and improvement by presenting further evidence and argument on the scale of the inaccuracies and misconceptions

in the current dominant building and agricultural wage series and the defects in the methods applied to them. This is followed by criticisms of the processes and assumptions commonly used to transform daily wage rates into real wages and standards of living. Suggestions will be made for improvement of the current data sets and the manner in which they are presented and interpreted, which include misapprehensions of the rates of pay workers actually received and how continuously they received them. Persistent widespread short-term casual working and chronic and cyclical unemployment in building as well as agriculture needs to be more fully taken into account when calculating average earnings,[4] as does the provision of free food and drink and the payment of bonuses and overtime, the incidence of which appears to have varied over time as well as from job to job.[5] The range of skills, functions and remuneration that are currently grouped together in most of the current wage series are far too broad to be representative of reality, none more so than the crude categorisation of the building workforce as either labourers or craftsmen. Those designated in many historical records and most current wage series as 'labourers' can, with a little probing, be shown to have been commonly, and often predominantly, semi-skilled assistants to craftsmen who were paid significantly more than the genuinely unskilled. In fact, as will be discussed in detail below, the renowned series of London builders' wages between 1259 and 1914, assembled by Robert Allen, compounds three major errors that vitiate its accuracy across its timespan. These are the conflation of unskilled and semi-skilled wages, the presentation as the wages builders earned of the inflated charges made by contractors and gang masters when they supplied labour to large building projects in London and elsewhere from the mid-seventeenth century, and the pasting together of wage series compiled by a succession of historians who used different methods of extracting data from the records and different methods of choosing the single daily wage to represent each year from the wide variety of wages paid for apparently similar work by the same employers, by different employers in the same locality, and by employers in different regions.[6]

The latter issue is of prime importance but sorely neglected and rarely discussed. For even if the correct levels of daily wage rates paid to specific grades of labour were to be carefully assembled and distinguished from

each other, and due allowance made for any bonuses or payments in kind, the selection of an appropriate single daily wage to represent each year would be far from straightforward, not least because men ascribed the same grade in the same craft were commonly rewarded with widely varying rates of pay, and not only when working in different locations but for the same employer on the same site. For example, the 53 men designated as masons working on Caernavon castle in October 1304 were in receipt of 17 different rates of pay, while the wages paid to masons working on St Paul's cathedral between 1700 and 1705 ranged from 10d to 36d per day.[7] Unfortunately, sharply differing methods of selecting the most appropriate daily wage to represent each grade of worker have been adopted by those who have constructed wage series in the past. Thorold Rogers, whose data still dominates large sections of a number of prominent series, was peculiarly inconsistent in the choices he made; sometimes taking the average of all the entries for each occupation but often selecting the highest. Phelps Brown and Hopkins, unsurprisingly used a different method and claimed that they avoided the 'mechanical treatment' of wage rates by, among other things, 'look[ing] for rates that we could regard as representative because they were recurrent'; unfortunately, they did not reveal precisely how they did this.[8] Jeremy Boulton, in one of the most extended and insightful discussions of the best method, opted for the modal rate for his series of seventeenth-century London wages, but in so doing differed from Rappaport who, seven years earlier, had chosen the median for his series of sixteenth-century London wages.[9]

The long-run series that attempt to record the daily wage rates and calculate the real earnings of agricultural labourers suffer from no less serious deficiencies. Far better account needs to be taken of the range of skills possessed by those who were hired, the seasonal patterns of employment and wage rates, and the form of the wage. But, most important of all, the estimates that have been made of the number of days of employment that casual labourers sought and were able to secure are exaggerations, and even if they were accurate, they would not be able to provide the labourers' full incomes.[10] For, the incomes of most rural families were determined by the cash and subsistence drawn from their landholdings and the earnings of other members of the household rather than by the wages of the male 'breadwinner' alone. Further doubt has also been cast on assump-

tions that causal labourers were able to secure continuous employment by studies of the remuneration of farm servants who served on annual contracts by the mass of data that Jane Humphries and Jacob Weisdorf have recently produced on the earnings of male agricultural servants employed on annual contracts.[11] It reveals the persistence of a yawning gap from the thirteenth century to the eighteenth between the recorded earnings of farm servants and the much higher reputed earnings of casual labourers. Humphries and Weisdorf attempt to resolve the conundrum by pointing out that, 'If labour market arbitrage was even partial, payments for annual work [should] make a good proxy for casual workers' annual earnings', and the fact that they do not strongly indicates that the conventional estimates of annual earnings from casual labouring are much too high.

Although the wage rates of building workers and casual agricultural labourers are exceptionally plentiful and continuous across seven centuries they can no longer be allowed to serve as a proxy for national wages and earnings. If wage and income data that matches the national experience is to be collected it is essential to move far beyond wage earners in building and agriculture to assemble a greater range of occupational incomes that are more representative of the changing economic structure and income distribution of the nation. Finally, over most of the era between the thirteenth and the eighteenth centuries only a minority of the working population were full-time wage earners or derived the bulk of their income from wages, so the longstanding excessive emphasis on wages and the neglect of a miscellany of other sources of income, including self-employment, farming and piece rates, must be corrected.[12]

II

The facile process that transforms the purchasing power of the money a worker received for a day's labour into living standards across centuries and continents has been conveniently summarised in a single short paragraph by Robert Allen:

> *'We can be more systematic in the comparison of living standards by asking what people could afford to buy with their wages. Our calculations require*

databases of wages and prices. Since the mid-nineteenth century, historians of Europe have been writing price histories of cities, and these provide the necessary raw material. Typically, the historian finds an institution like a college, hospital or monastery that has existed for centuries. The historian then searches its financial records abstracting the prices of everything it purchased. The results are time series of the prices of foodstuffs, textiles and building materials, as well as the wages of people like masons, carpenters and labourers who worked for the institution. Comparable work for Asia has barely begun, and the prevailing data do not yet run as far back into the past. Nonetheless, enough is at hand to assess pre-industrial living standards around the globe'.[13]

Although Allen provides no indications, here or elsewhere, that there is sufficient robust evidence of the numbers of days worked to calculate the total amount earned, he attests that a day's wage, a real day's wage, earnings and standards of living can be linked together in a continuous self-supporting chain, so that when he poses the rhetorical question, 'Did the high wages earned in northwestern Europe [from the sixteenth century] translate into a high standard of living?', he confidently responds that all '[t]he answer depends on [are] the prices of consumer goods'.[14]

Gregory Clark goes even further by endowing rudimentary entries of the number of pence paid for a day's labouring on a farm with even more extraordinary powers, claiming that: '*using day wages we can build up a picture of English agricultural history that presents an internally consistent picture of the real wage, the MPL (marginal product of labour), output per farm worker, national population, the share employed in agriculture, and agricultural efficiency in general, from 1200 to 1869*.'[15] Clark also concurs with Allen that, by including the costs of the labourer's basic subsistence, the standard of living of nations can be revealed throughout the long march of history, because 'the material living standard of the bulk of the population will be determined by the purchasing power of the wages of unskilled workers'.[16] However, the support that is claimed for such speculations rests not on hard evidence but on theory that is predicated on the nature and allocation of paid work in highly competitive modern market economies. Yet, labour markets in preindustrial and early industrial economies functioned far less efficiently than those of the present day and the key assumption that distortions and major differences aris-

ing within them would have been swiftly eliminated by arbitrage is misplaced.[17] Furthermore, because the proportion of wage earners and the share of wages in national income before industrialisation were far smaller than they were to become later, the role of wages as an indicator of economic performance and the standard of living is severely diminished.

The eagerness to compile and use long-term wage-rate series that seemingly can easily be converted into real wages and standards of living has resulted in the neglect of the distinctive characteristics of preindustrial and early industrial labour markets where the proportion of the work force continuously employed working for wages was far smaller than those who sought hired work only on an occasional basis because they had significant alternative sources of income and employment. It is also the case that the price of labour did not behave like the prices of other commodities. Nominal wages, unlike real wages, were 'sticky'.[18] In contrast to the prices of agricultural commodities, which fluctuated substantially from year to year in response to changes in supply and demand, the daily wage rates in the leading series are extraordinarily and, one might say, unrealistically static, often remaining frozen for many decades and sometimes for a century. The wages that have been collected are also notable for the extreme rarity of falls and for the persistence over very long periods of fixed differentials between grades of labour.[19] It is likely that the stickiness of wages has been exaggerated because the standard wage-rate series are dominated by the records of conservative managers of large institutions who clung to customary rates of pay through times of labour surplus as well as scarcity, whereas 'private persons who had to put their hands in their own pockets' were likely to have responded more flexibly and speedily to changing conditions in local markets.[20]

III

The interest of historians and economists in seeking insights into standards of living and economic development by compiling databases of wages and prices dates back centuries, but in the mid-1950s the publication by Phelps Brown and Hopkins of the wage rates of building

labourers and craftsmen together with the prices of basic consumables across seven centuries gave a fresh impetus to the quest to maximise the utility of these data and enhance their ability to illuminate key areas of economy and society across long sweeps of history and the world.[21] Phelps Brown and Hopkins categorically denied that they had produced an index of real wages, and carefully called their study 'Seven Centuries of the Prices of Consumables compared with Builders' Wage Rates', and their index 'the physical equivalent of the wage rate'. But very soon the tight restrictions they imposed on the use and interpretation of their data were discarded by a succession of historians and economists seeking to use them as indications and then representations of living standards. In the succeeding stages of the quest to chart living standards the careless use of the terms 'real wages', 'real earnings' and 'real incomes', and the failure to distinguish them from real wage rates, became deeply embedded in the literature as the long-run databases of the daily real wage rates of builders and agricultural labourers were deemed capable of serving as proxies for average real earnings in the country as a whole, and thence as representative of the national standard of living and indicative of GDP per head. Thereafter, as the collection of historic wage rates and the prices of basic consumables spread across the world, the more adventurous quantifiers began to use real wage rates to make comparisons between standards of living in many countries, and not just at a single point in time but across many centuries. In 2002 Allen charted the great divergence in European wages and prices from the middle ages to the First World War, and his 2007 paper 'compares the standard of living of labourers in the Roman Empire in 301 AD with the standard of living of labourers in Europe and Asia from the middle ages to the industrial revolution'.[22] Nowadays trust in the omnipotence of the purchasing power of the daily wage of craftsmen and labourers drawn from a tiny range of occupations has been extended from underpinning the confident ranking of the economic performance of a host of nations to accounting for their places in that ranking.[23]

Unfortunately, critical faculties are prone to be dulled when presented with the enticing prospect of tools that promise to facilitate the interpretation of broader and broader swathes of key areas of history. Whereas

cliometricians, econometricians and quantifiers have been the pioneers in each stage of the attempts to transmute the base metal of the daily wage rates of select groups of workers into the golden mensurator of the standard of living of the populations of nations and the efficiency of their economies, the results of their speculations have drawn remarkable durability and ubiquity from their ready acceptance by the generality of historians eager to seize statistical anchors while floating in a sea of partial, disparate and largely unquantifiable evidence. As a consequence, there is scarcely a general survey of the history of England in any of the centuries between the thirteenth and the twentieth published over the last few decades that does not use the Phelps Brown and Hopkins wage and price series, or newer but similar compilations of them, as measures of national standards of living in order to illustrate and shore up narratives and analyses of crucial areas of economic and social history. While innumerable works devoted to a host of subjects, such as wealth and poverty, demography, economic growth, the industrious and industrial revolutions, locate these data at or close to the centre of their expositions and explanations.

Yet, for all their popularity, the real wages and standard of living series that now densely populate the historiography have at their core little more than what a day's wage was able to purchase. This is essentially what Malthus calculated when he looked back to the fifteenth century and judged how much more grain a day's labouring then would buy than in his own day.[24] It goes without saying that valuable insights are provided by Clark's long series of the real wages rates and living costs of farm labourers and building workers and Allen's series of builders' wage rates and graduated subsistence baskets, which have been universally represented in a profusion of tables and graphs as indices of 'Real Wages', but the accurate measurement of living standards is not one of them.[25] None of these series, nor any of the other compilations that are now available, can reliably be used to transform a day's wage into real wages without knowing far more about the number of days these workers were employed at these rates, nor can they be transformed into real incomes without knowing far more about the other sources of income and subsistence that individuals and households enjoyed.

Furthermore, if these data are to serve as robust proxies for national living standards far more needs to be known about how representative they were of the incomes of the whole population across seven centuries. The signs are not positive since the distribution of income was far from static. To give just one example, recent studies have added range and precision to the well-known phenomenon of the increasing polarisation of income and wealth in the long sixteenth century that saw the decline in the economic fortunes of the labouring masses at the same time as strata above them enjoyed growing prosperity.[26]

Given its obvious importance, surprisingly little attention has been devoted to amassing the evidence and developing the methods needed to make a more convincing leap from the daily wage rates of building workers and agricultural labourers to their standards of living, to say nothing of the huge further leaps necessary to be able to use the experience of these select occupational groups to measure the well-being of the inhabitants of the country as a whole. In fact, instead of testing the validity of current assumptions, addressing their obvious weaknesses and developing methods to minimise or eliminate them, there has been a widespread acceptance of the inevitability of having to work with faulty data. Thus, Allen proclaims his belief that 'Our knowledge of real incomes in Europe is broad and deep' while at the same time admitting that 'While one can fault both the wages and prices recorded in these [large institutional] sources, they are relatively uniform and, in the final analysis, are the only sources comprehensive enough to address these issues'.[27]

Yet, time and again those who have struggled to define and refine daily wage rates rather than simply assembling them into time series, have counselled that the flaws in the existing series are fatal and contested the over-ambitious conclusions such data have been forced to support. Donald Woodward left no doubt of his scepticism when in 1981 he summed up his iconoclastic article on wage rates and living standards in preindustrial England with the damning statement that, 'A comparison of the daily wage rate earned by building craftsmen, working on large-scale contracts, with the price of a basketful of commodities can tell us little about the fortunes of the majority of workers in such a society'.[28] He went on to provide chapter and verse of the reasons for his condemnation in a monograph devoted to labourers and building craftsmen in northern

towns, which concluded that 'Any attempt to establish a meaningful series of real income founders on our ignorance of the number of days worked in the year'.[29] In 1996 Jeremy Boulton in his study of wage labour in seventeenth-century London likewise asserted that the limitations of the sources make 'a nonsense of any trend in earnings or wages derived from money wage rates alone', and concurred with Woodward that, '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', and thus what was earned.[30]

Notwithstanding a host of similar warnings,[31] the use and abuse of these crude data have continued apace. Ambition has far outrun achievement and it is time to rein back. Can the purchasing power of a day's wage paid to labourers and craftsmen on building sites and to part-time casual labourers on farms provide the information required to measure accurately the standards of living of nations? Can it really be the case that the daily remuneration of these sectors of the waged workforce, selected not for their typicality but because their employers happen to have left the most numerous and superficially unproblematic records of wages, has serendipitously turned out to have continuously mirrored the average incomes received by the national population for century after century? Or, at the most modest end of the spectrum of scepticism, can the current databases of payments for a day's labour be made to reveal the earnings of the workers who received them without hugely improved knowledge of the daily pay they actually received, the number of days they worked, and the scale of their other sources of income?

To these and similar questions Phelps Brown and Hopkins gave a resounding 'No'. They firmly stated that what they had constructed was not any measure of real wages in the modern sense because, on the income side, all they had produced was the pay for a day, and not how many days' work the builder performed nor what other resources he had. While, on the side of outlay, they confessed that, even if more and better information were to be collected, not much meaning could be attached to the 'cost of maintaining a constant standard of living through seven centuries of social change.'[32]

Draconian as such judgements might appear to those producing and using wage series today when they were made there was little in them that

was either new or particularly insightful. Fifty years ago, in 1906, Paul Mantoux had written in an identical vein in the first edition of his *Industrial Revolution in England*: '*If we want to discover not the nominal wage,* i.e. *the money paid for a certain time or for a certain piece of work, but the actual wage, together with its purchasing power, we are tackling a difficult and complicated problem the solution of which can only be obtained by comparing a number of different data. We ought first to know a man's total wage for a month, a season or a year, and how far it was reduced by either voluntary or compulsory unemployment. For a man may be very well paid and yet earn very little, if he does not work every day. Then we should know whether he had any other source of income, as was the case with village workers, who when comparatively well off cultivated their plots of land or grazed their cows on the common, and who when very poor received help from the parish. We should also want to know what each member of the family contributed to the annual family budget.*[33]

Similarly, sceptical sentiments resonate throughout Elizabeth Gilboy's pioneering study of wages in the eighteenth century published in 1937.[34] Yet, in the course of the century since Mantoux laid down the basic requirements for calculating real income there has been scant further progress towards meeting them.[35]

IV

The recent flurry of estimates of the long-term performance of Britain's Gross Domestic Product (GDP) offers opportunities to test the prevailing historical wage data from fresh perspectives. The results are extremely disturbing. Whereas GDP per head and real wages should correlate well over time because they are both measures of national welfare, Fig. 2.1 shows massive divergences between the new 600-year series of GDP per head presented in Broadberry et al. and the daily real wage rates for so-called building labourers produced by Allen and by Clark, which were caused by growth not only occurring at differing rates but frequently moving in opposite directions.[36]

According to the authors of *British Economic Growth, 1270–1870*, 'What is remarkable about the [real] GDP per head trend is not the

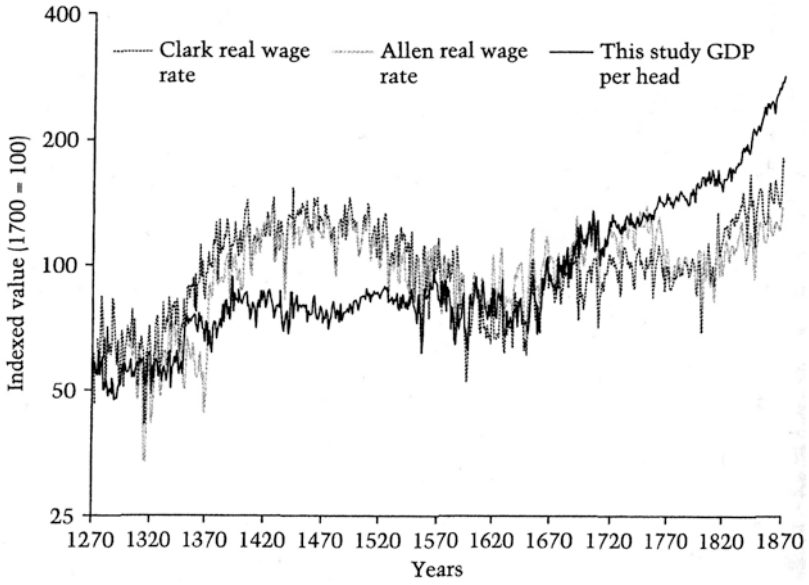

Fig. 2.1 Daily real wage rates of 'unskilled building workers' and GDP per head, 1270–1870. (From: *British Economic Growth, 1270–1870*, p. 258, Fig. 6).

magnitude of its variations, which were narrow, but that from almost the start of the series stability and growth prevailed over decline'. By contrast, the leading characteristic of the real wage indices is that they exhibit cyclical patterns during which extended periods of strong growth are followed by periods of equally strong decline.[37] The net result of these new real GDP per head estimates growing at an average annual rate of 0.18 per cent up to 1700 and 0.48 per cent between 1700 and 1870, is an almost fivefold increase between the 1270s and 1870.[38] In sharp contrast, none of the standard real wage series manage to more than double over the same period, and none manage to climb significantly above the levels they had attained in the later fifteenth century.[39] Although there were periods of congruence when the real wage rates of building and agricultural labourers moved roughly in step with the estimates of GDP per head, notably from 1270 to 1349 and for 100 years or more after c.1580, there were also two extended periods when they were far apart: the first lasting from the 1350s to the 1570s, when the rate of increase in real

wage rates soared above that of GDP per head before eventually falling back, and the second from c.1750 when GDP per head grew progressively decade by decade while real wage rates stagnated.

The huge disparities in the performance of the two series can be further examined by dividing an index of the real wage rates of 'building labourers' by an index of GDP per head. The ratio between the two rose rapidly in the later middle ages as the real wage rates of labourers soared, taking them from being modestly above real GDP per head in the late thirteenth century to almost twice as high by the third quarter of the fifteenth. Thereafter, however, the ratio fell steadily to reach less than 0.5 by the late nineteenth century as real GDP per head embarked on a virtually continuous ascent while real wage rates suffered a long decline followed by stagnation before, eventually, embarking on a stuttering rise. The presentation of the data in this form also highlights the amplitude of puzzling short-term fluctuations in the ratio which, when taken at 50-year intervals between 1300 and 1870, displays a mean variation of 21.5 per cent.

In their investigation of how to reconcile these huge, recurrent disparities the authors of *British Economic Growth* somewhat surprisingly accept without discussion the accuracy of Clark and Allen's 'unskilled' daily real wage rates and their ability to represent average national living standards and choose to believe that reconciliation lies exclusively in variations in labour supply per head over time.[40] Essentially their hypothesis is that there was extraordinarily low work intensity in the later middle ages and progressively longer working days, weeks and years thereafter. They find general support for this contention from epochal events such as the Reformation, with its abolition of festivals and saints days, the 'industrious revolution' with its increase in 'busyness', and the industrial revolution with its factory routines, clocks and strict work-discipline. On top of this, the authors also find assistance for their hypothesis in the speculations of the handful of historians who have bravely ventured to hazard a figure for the number of days worked in a year. Taking these sparse estimates at face value they determine that the national working year increased from an incredibly short 165 days in the 1430s and 180 days a century later, to as much as 336 days in 1830. Having multiplied these estimates of numbers of days worked annually by the real wage paid for

each day and compared the results with real GDP per head, the authors feel confident enough to claim that, 'the apparent contradiction between the long-run stagnation of daily real wage rates and the trend growth of GDP per head measured from the output side disappears.'[41]

Unfortunately, the gross disparities between the two series cannot be made to disappear as easily as this prestidigitation would suggest. A little probing soon reveals fatal weaknesses in the estimates of the changing length of the working year. For example, the vital baseline working years in the 1430s and 1530s have not been taken from the recorded working patterns of builders, for which evidence exists and whose wages form the basis of the comparison, still less are they derived from a representative sample of the working population as a whole, instead they are the imputed working patterns of a mere 30 or so Mendip men who combined farming with mining lead.[42] Not only is this sample derisory in size and highly selective in nature, the working patterns it creates are at odds with those that are precisely recorded for full-time building workers in contemporaneous accounts. For example, the average working week of all the masons employed building King's College chapel in the 12 months beginning mid-May 1509 was 5.18 days, which equates to a working year of 269.5 days for those who were in continuous employment.[43] A similarly intense pattern of working was followed by the masons building Eton College in 1446.[44] At both sites holidays were taken at Whitsun, Easter and Christmas, but for the rest of the year six-day weeks were almost universal. Moreover, there is no indication that once hired the managers of building projects allowed employees the choice of working on the days and at the pace they wished. Interestingly, the only sign of a preference for leisure among the workforce building King's College chapel is that craftsmen regularly took two more days of unpaid holiday over Whitsun and Easter than the lower paid 'labourers'.[45]

That earnings were highly sensitive to changes in the number of days worked is a statement of the obvious, but in current circumstances it is still worthy of emphasis. For example, if the moderate assumption of a 225-day working year for the period from 1300 to the 1500s, a 275-day working year from the 1550s to the 1700s, and a 300-day working year from the 1750s to 1870 were to be adopted instead of the far higher rates of increase favoured in *British Economic Growth*, the annual earnings of

so-called building labourers would have traced a very different but no less remarkable pattern by starting at 140 per cent of GDP per head in the 1300s, rising to a peak of 220 per cent in the 1450s, and then declining over the next 350 years to 120 per cent of GDP per head in the nineteenth century.[46]

Further comparisons of these recently generated GDP data with the historical wage data on which so much reliance has been placed for so long give rise to many additional disconcerting outcomes. For example, in the immiserated half century before the Black Death, when land was extremely scarce and expensive, when the market was flooded with surplus labour and real wages were at the lowest levels recorded in the whole seven-century span, a landless 'building labourer' in southern England, without any other sources of income but his muscles, would have had to work only 158 days to earn the same amount as average GDP per head, a landless agricultural labourer less than 180 days and a building craftsman just 70 days. Furthermore, if these historical wage and GDP data are accepted as accurate, why do they tell us that as the English economy developed over the centuries the earnings of craftsmen progressively declined relative to GDP per head, when the present-day data tell us that craftsmen's earnings relative to GDP are much higher in advanced economies, where they average 80 per cent of GDP, than they are in less advanced economies, where they average less than 50 per cent of GDP?[47]

V

It is appropriate to begin the process of improving knowledge of standards of living across the centuries by exposing and then remedying the manifold weaknesses in the most basic and seemingly straightforward of all the prime data—the daily wage rates of building workers and agricultural labourers. To do so is to appreciate immediately that many of their failings originate from, or are exacerbated by, excessive reliance on the sources used in the compilations of Phelps Brown and Hopkins, Allen, Clark and others, which are overwhelmingly the records of rich institutions rather than of a representative sample of employers. While institutional sources have the great advantage of facilitating the construction of

long-run time series by providing large numbers of gratifyingly continuous observations, they are not typical of wages and conditions of employment in the industries at large. Not only were institutions prone to respond lethargically to changes in the labour market, the wage rates recorded in their accounts often deviate significantly from those the workers actually received, a fact which has until recently gone largely unacknowledged.

Additional deficiencies in the current databases stem from their origins in data compiled a long time ago by researchers and assistants whose priorities encouraged them to skim through vast numbers of records to locate the sections that listed wages and prices, and then extract from them the maximum number of usable entries in as straightforward a form as possible so that they could be quantified precisely and placed without equivocation into simple tables and charts. In their defence, these early collectors had far more limited horizons than those who have subsequently used and interpreted what they had amassed, namely to discover the level of the daily wage and assess what it would buy rather than using it to calculate earnings and living standards to compare across countries and centuries.

No one who checks the quality of the data that Thorold Rogers and William Beveridge gathered by studying the records from which they were taken, can be left unaware of the host of concerns that immediately arise over the crucial decisions that were taken on the selection and treatment of entries. The desire to collect the maximum amount of consistent neatly-trimmed data under tight time constraints meant that entries were routinely copied rather than interrogated and a culture was fostered that encouraged the discarding of evidence that seemed awkward. In the worst cases, relevant information was omitted because it was difficult to assimilate into neat tables, despite evidence that its inclusion would have had a significant and often substantial effect on calculations of the level of wages. Striking cases in point are the decisions made by a succession of compilers of the wages paid in the decades after the Black Death of 1348–1349, which have combined to create the false narrative that real wages did not increase despite the massive decline in population.[48] Thorold Rogers noted the many instances he came across in the wake of the great plague where the auditors of manorial accounts had

crossed out the rates of pay claimed by local officers for the workers they had hired and substituted lesser amounts. On the manor of Clarette in 1349, for example, the rate the bailiff claimed he had paid for threshing fixed quantities of wheat was arbitrarily reduced by the auditors from 5d to 3d, and in the following year the amount allowed for threshing wheat, rye, peas and vetches was slashed from 6d to 3d. Rogers ruminated on this practice, which he found was widespread, and pronounced, 'I cannot help thinking that these transparent erasures are simulated, and that they point to evasions of the statute [of labourers]. The labourer, if he did not receive his full money wages, was compensated in some covert way to the full extent of the previous entry'.[49] Yet, strangely, Rogers decided to ignore his instincts and he substantially understated the true rate of pay by accepting the reduced rates and not searching elsewhere in the accounts for evidence of compensation in cash or kind, and confessed, 'Of course in the tables which I have constructed I have not taken the figures which have been cancelled, but those which have been substituted'. Half a century later Beveridge performed similar contortions with similarly misleading results in his influential article on 'Winchester Wages' after the Black Death. In a postscript Beveridge confessed that 'Since this article was set up in proof, further investigation of the records has shown that extra payments for threshing over and above the stated piece rates … occur in most of the manors investigated in a good many years between 1348 and 1373 … [which are] clearly methods of adjusting the actual remuneration to changing conditions … without formally varying the rate'. He also drew attention to the provision of food, even full-board, for artisans. Illogically, however, Beveridge, like Thorold Rogers before him, decided that these very substantial additions to the recorded wage rates 'do not appear to call for correction of the statements made in the article'. So he duly presented grossly understated rates of pay in his many tables which for 80 years have been a mainstay of studies of wages after the Black Death.[50] In short, Beveridge ignored the supplementary payments primarily because they were too awkward to incorporate into his neat tabulations.[51] By so doing he misled generations of historians into purveying the illogical contention that in a time of acute labour scarcity, universal complaints about rising wages and the incentive to sell demesne produce at record prices, the bishopric of Winchester was able to hire all

the labourers it required at rates of pay which in real terms scarcely rose despite the loss of 40 per cent or so of the population, thereby condemning them to falling living standards. Unfortunately, David Farmer, whose massive compilations of manorial data have greatly advanced knowledge of the medieval English economy, followed Thorold Rogers and Beveridge in knowingly producing inaccurate wage data for the period after the Black Death. Farmer provides many examples of the very large amounts of cash and corn that he had discovered being paid to workers in addition to their traditional basic wages, but he tells us, 'My tables exclude the value of the tips, which are not always expressed in cash'.[52] As a result, he too perpetuated the myth adopted by a stream of scholars that real wages scarcely rose, or even fell, after the Black Death. The reality, however, is that even on the notoriously conservative Winchester estate wages did rise steeply, as Farmer noted, giving one example among many, of Witney manor where the pay for threshing and winnowing three mixed quarters of corn in 1363–1364 and 1364–1365 was not the 5.25d recorded in his tables, but actually 7.5–8d, when tips in corn and cash are included.[53]

The opposite phenomenon of exaggerated wages occurred on large-scale building projects in later seventeenth and eighteenth-century London, where it became common for institutions to use contractors rather than employing labour directly. Judy Z. Stephenson's analysis of a range of complementary documents relating to building works at St Paul's cathedral has revealed that the gap between the daily rate the cathedral commissioners were charged for the unskilled labourers they hired and the rate the labourers received was around 20 per cent in the early eighteenth century. Stephenson has also claimed that the daily wage rates for builders compiled by Boulton, Schwarz and Gilboy from the records of this period, and copied by Allen into his seven-century series, are similarly substantially higher than those the workers actually received.[54]

On smaller projects it was often craftsmen rather than contractors who profited as they commonly billed customers for the services of their assistants at a higher rate than they paid them.[55] According to Robert Campbell, writing in the 1740s, joiners in London paid their workmen 2s 6d per day but charged their customers 3s.[56] This was a practice that had very long roots: in 1502–1503 Rawlyn Lokkey can be observed charging the wardens of Browne's Hospital, Stamford, 5d per day for his

own labour repairing a roof and a hefty 4d a day for his *'servar'*.[57] It was also customary for many building craftsmen, especially those working on small-scale projects, to profit from supplying some of the raw materials they used on their jobs, thereby taking their total incomes well above those signalled by their daily wages alone.[58]

Even more significant distortions in the long-run series of building workers' daily wage rates have been caused by the misapprehension that all the workers designated in the records as 'labourers' were unskilled and therefore representative of the lowest stratum of the urban labour force. Generations of historians have been misled by those who drew up building accounts and used the term 'labourer' to refer to any worker who was not a craftsman. The result has been that innumerable tables in books and articles have been, and still are, routinely entitled 'Wage Rates of Unskilled Building Workers', 'Labourers' Wages' and 'Labourers' Wages Around the World',[59] when they are actually derived from a mixture of the wages of genuinely unskilled labourers and the substantially higher amounts paid to the semi-skilled servants who 'assisted craft'. What is more, the scale of this misapprehension is compounded by the tendency of building projects to use substantially more semi-skilled workers than unskilled, with the result that the multiple series claiming to present unskilled labourers' wages are dominated by men whose training and skills brought them substantially higher pay.

A guide to the potential scale of this error is provided by the 1655 London wage assessment, which specifies a maximum daily wage of 24d for a journeyman or apprentice with two full years of training, 18d for less experienced apprentices and 16d for labourers. A glance at Fig. 2.1 in Boulton's study of wage labour in seventeenth-century London reveals clusters of wages which vary by more than 50 per cent being paid in the same year to those loosely called 'labourers'.[60] In a similar vein, genuinely unskilled labourers working at St Paul's at the turn of the seventeenth and eighteenth centuries received just 12d per day while 'labourers' who were craftsmen's assistants received 17d on average, and at London Bridge odd-job labourers and watchmen were paid or charged out at 14d per day or night and craftsmen's assistants at 18–20d.[61]

Once again, a little research shows that this was not a new occurrence, but one that the compilers and users of wage series have simply failed to

pick up. However, the preceding generation of historians of the building industry was well aware that the wide range of tasks covered by the general term 'labourer' actually reflected differing grades of skill, aptitude, experience and rates of pay, as was Robert Campbell, who provided a host of detailed examples in his *London Tradesman*.[62] Knoop and Jones drew a clear line between 'automatic manual workers', who used little more than muscle-power, and 'responsible manual workers', who assisted craftsmen in carrying out their skilled work, as masons' 'labourers' did when they dressed and laid stone. These authors also supplied many instances of medieval craftsmen instructing their assistants in the arts of masonry and carpentry, and sometimes being formally required to do so, and they traced the careers of assistants assigned to masons who received progressively higher pay as they gained experience and skill. One such man was William Warde who, in 1419, after working for 2s a week for at least three years on London Bridge as a servant to the masons, was henceforth paid 3s a week, 'because he works well as a sufficient mason'. Knoop and Jones also identified and provided much information on the stratum of genuinely unskilled labourers beneath these semi-skilled workers who, for significantly lower rates of pay, undertook predominantly temporary labouring, such as digging foundations, levelling sites and carting stone, rubble and other raw materials, which required 'a modicum of common sense, a fair amount of brawn, but little specialised knowledge'.[63]

The wage series compiled for casual agricultural labourers contain weaknesses and inaccuracies of a comparable range and severity to those for building workers, and in their present form are incapable of producing reliable estimates of the incomes of the workers they are meant to represent. Gregory Clark's 660 year male nominal daily wage series is by far the most substantial in existence and he uses it as the foundation on which to construct the real wages and thence the standards of living of English farm labourers, and much else besides.[64] To do so he selects a representative nominal daily wage to serve for each year in the series, converts it into a real daily wage by deflating it by estimates of living costs, and then produces annual real earnings by estimating the number of days that the average labourer worked. These are no easy tasks, but Clark makes light of them, beginning confidently by dismissing 'the general belief among agricultural historians that winter unemployment was

a significant problem for English agricultural workers'.[65] However, in doing so he goes against hosts of records and historical studies demonstrating that the amounts that could be earned sagged during the lengthy slack periods of each year when the limited labour that was required was largely supplied by family members on smaller farms and by servants employed on annual contracts on larger farms.[66] Despite this evidence, Clark claims that 'male agricultural labourers were typically employed for 300 days or so per year throughout the period'. If this were true it would have required them to have surmounted the formidable logistical problems of securing employment, in all weathers, on every single working day for 50 weeks of every year from a miscellany of farmers in scattered communities with limited means of communication.[67] It is by espousing these rose-tinted speculations that Clark endeavours to convert the purchasing power of the pay for a day's casual work into a standard of living index that stretches from 1209 to 1869. More than this, he goes on to press his basic data into yeoman service by making comparisons across centuries during which his 'real agricultural day wages' are silently transformed into 'real wages' and thence into 'living standards', which are then used to demonstrate, among many other things, that 'there is no sign of any secular trend towards higher living standards in the pre-industrial era', that 'living standards for farm workers were about the same in 1200 as in 1800', and to prove the truth of 'one of the basic tenets of the Malthusian model of pre-industrial society,[that] … [g]ains in efficiency in activities such as agriculture do not lead to any sustained increase in living standards but instead to a growth in population'.[68]

Among the host of additional concerns with the ways in which the standard agricultural wage-rate series have been collected, processed and interpreted, none is more pressing than the selection of the appropriate day's pay to represent each year. A review of the sources from which Clark's wage rates have been extracted reveals a heavy preponderance of richer landowners, which is inevitable as they were the best compilers and preservers of records. However, these sources do not provide a balanced sample from which to calculate an average wage. The majority of casual farm labourers were not employed on such grand estates and the wages these estates paid were not necessarily representative of those that could be earned by the generality of casual labourers. There is strong evidence

that gentry farmers often paid lower wages than the aristocracy and it is likely that peasant farmers would have paid even less.[69] For example, in the halcyon days of the fifteenth-century 'golden age', outside of the busiest weeks on the farms of gentry and small institutions, the pay for a day's casual labour performing basic tasks such as weeding, ditching, spreading manure and threshing, was commonly a mere penny or two rather than Clark's notional average of 3.5d.[70]

The selection of an appropriate daily wage to represent each year is further complicated by the fact that for much of the seven centuries the majority of the entries of the daily wages paid to hired labourers were generated during short but extremely busy times of the year, especially haymaking and harvest time when the bulk of casual labour was hired to assist farm servants on the great farms. On the home farm of Trentham (Staffs) in the 1850s, for example, the presence of 65 farm servants who each worked an average of 230 days a year meant that less than 10 per cent of the labour used on the farm was performed by casual labourers, and none at all were hired between November and March.[71] The huge spike in the demand for labour nationwide at harvest time was created not only by the amount of work needed to get the crops in but the desire of all farmers to do so at the optimum time. Unsurprisingly these pressures forced pay and perquisites up far above average levels. As late as the eighteenth century 'harvest wages were normally at least 50 per cent higher than those offered at other seasons', and workers could also expect liberal provisions of food and drink on top.[72] It takes great care to ensure that the abundance of records of untypically high rates of pay for hired casual labour generated during these short busy periods are not allowed to lead to misleading conclusions about the scale of year-round pay and employment opportunities.

Regional variations in wages also need to be handled with great care. On the extensive estates of Durham priory in the 1380s, for example, casual workers brought in to supplement the labour of the farm servants were paid only 1d or 1.5d per day, which was little or no higher than Clark's agricultural wage in the 1300s, a period which, with some justification, he labels as having 'the lowest real wages in the recorded history of England'.[73] Even by the turn of the fifteenth and sixteenth centuries Durham priory, along with Thetford priory in Suffolk, was commonly

paying agricultural labourers as little as 2d per day, compared to the 3–3.75d chosen by Clark as the average for England at that time.[74] Nor were low rates of pay compensated by continuity of employment, for the work offered by both priory estates 'was irregular and piecemeal for the majority of its employees'.[75]

An additional risk of misreading the level of agricultural wages stems from a common tendency to lump all casual farm workers together as labourers, when there were significant differences in their skill, specialisms and strength, and therefore remuneration.[76] There is also the misplaced notion that for most of the period wages were paid promptly and wholly in cash when in practice there prevailed a 'local economic system inhibited by lack of cash; a labour market which was inextricably tied up within a complex economy of makeshifts; and a remuneration system pervaded by customary entitlements and distorted by the existence of complex credit networks'.[77] The shortage of coin and the strength of customary entitlements meant that over much of the period farm wages were often paid in arrears and at least partly in forms other than cash. On the other hand, the frequency and scale of the food and drink that casual farm labourers received on top of their money wage has commonly been underestimated and ignored in standard compilations of their daily wage.[78]

Finally, the calculation of the nominal wages of agricultural labourers is also inhibited by the frequency with which wages were paid for the task rather than the day. For much of the period, the prevailing method of remunerating harvest workers was for the reaping and binding of an acre of specified grain and for threshers employed after the harvest the threshing and winnowing of a quarter of specified grain. Since the amount of time taken by these tasks is rarely recorded and difficult to estimate with any precision, these data have commonly been presented by medievalists and early modernists in the most straightforward and secure manner as the cash paid for completing the task and the amount of food, commonly grain, that this cash payment could buy.[79] However, the compilation of a long-run wage series across six or seven centuries requires the conversion of piece rates into daily wages. As Clark found out, this is a taxing and speculative task.[80]

The abundant evidence of the far lower remuneration received by full-time farm servants working on annual contracts poses a major challenge to the assumption that annual earnings from casual agricultural labouring can be calculated using a working year of anything like as long as 250–300 days at anything like the quoted daily wage rate. In the later fifteenth century, for example, only the highest-skilled and most respected farm servants received as much as 50s in cash and kind, which equates to a mere 2d per day for a 300 day working year, and there were very many farm servants who received the equivalent of only a penny a day or even less.[81] These modest earnings contrast sharply with the extremely optimistic projections of the bucolic bounties bestowed on casual labourers in the period, including Clark's claim of daily wages of 3.5–3.74d and annual earnings of 87.5–93.75s, and Dyer's assertion that abundant unskilled rural employment was available year-round at 4d a day.[82]

VI

Although the number of days worked is crucial to the measurement of earnings, this part of the calculation has been sadly neglected and as a result, hard facts on the intensity and continuity of work are pitifully scarce. Confidence is further drained by the alarming discrepancies in recent estimates and the speed with which they have been changed. Despite the existence of a longstanding, albeit vague, general acceptance among historians that the length of the working year varied widely over time and between sectors of employment, Clark in 2001 held that the working year for agricultural labourers was '300 days or so' and Allen in 2009 held that the working year for urban building workers was 250 days.[83] Allen went much further than Clark, who restricted his claim to England between 1670 and 1869, by positing a universal 250-day working year for building workers in European and Asian cities from 1375. Of course, this was pure speculation and Allen recanted just two years later when, in collaboration with Jacob Weisdorf, he maintained that, instead of stability, huge swings had taken place in the number of days worked in England between c.1300 and 1830, driven primarily by consumption needs and desires. According to Allen and Weisdorf the

working year halved between the early fourteenth century and the early sixteenth as rising nominal wages and falling food prices encouraged the taking of far more leisure, and then as economic circumstances changed it rose progressively until it had more than doubled by the opening decades of the nineteenth.[84]

What could better display the pressing need for more research than this dramatic reversal of judgement? At a stroke acceptance of the proposition that a series of massive oscillations took place in the length of the working year undermines both the conventional assumption that real daily wage rates can be used as a direct proxy for real earnings and the traditional narrative of the course taken by standards of living over time. Indeed, the multiplication of daily real wage rates by the wildly fluctuating number of days in Allen and Weisdorf's roller-coasting working years produces truly iconoclastic results. Their adoption of a working year of excess of 365 days in the early fourteenth century entirely eliminates the desperate poverty of smallholders and the landless in what has always been considered an era of notorious overpopulation, while their slashing of the working year by more than half in the post-Black Death era dramatically debases the renowned 'golden age', their positing of a prolonged rise in industriousness under the Tudors and early Stuarts powerfully diminishes the extent of the period's notorious falling living standards. Finally, instead of the real incomes of mid-Victorian farm labourers being no higher than those of their predecessors in the later fifteenth century, as Clark and a multitude of others have argued, they are propelled far beyond them by the simple expedient of the nineteenth-century workforce opting to work ever more days.

The style in which Allen and Weisdorf have written their paper initially makes it difficult to be certain whether they intended their model of subsistence-driven working patterns across more than five centuries to be just an interesting way to 'turn the traditional view on its head', or as the presentation of a new historical reality.[85] However, as their article proceeds and reference is repeatedly made to the close fit of the number of days that farm workers needed to labour to meet subsistence goals with 'independent estimates' of their actual working year, the latter possibility is progressively strengthened. Thence, the authors finally claim that their 'exercise also suggests that farm workers had a largely backward bending

labour supply curve, which in turn would mean that our estimates of the implied working year can be used as a proxy for the actual working year among farming day labourers from the late middle ages through the industrial revolution'.[86]

However, as has been shown above, this startlingly bold conclusion places far more weight on the smattering of speculations on the changing length of the average working year than they can bear.[87] What is more, Allen and Weisdorf's propositions depend in large measure on the quaint notion that, irrespective of the demand and supply of labour, casual labourers were always able to find all the work they wanted and at stable nominal rates of pay. Should we now discard lessons that periods of excess labour supply were usually accompanied by rising unemployment and underemployment which made finding sufficient additional days of work to offset falling real wage rates more of an aspiration than a feasible accomplishment? Can it really be that what have always been commonly seen as the land-hungry, ill-rewarded masses of the early fourteenth century and late sixteenth were simply able to work their way out of poverty when empirical studies and economic logic show that the supply of labour in such times tended to far exceed the demand for it?[88]

Much has been made of the high wages paid to building workers in preindustrial Britain and in London in particular.[89] However, the extent to which they translated into high earnings also depended on the ready availability of employment, which a wealth of sources reveals to have been commonly short-term and episodic. Numerous building accounts record the names of employees and provide direct evidence of the number of days they worked on a week by week basis, while other accounts record the numbers of employees and the total of days they worked which enable average lengths of employment to be discovered. Much more counting needs to be done before it is possible to measure accurately the number of days worked by each category of labour, but it is already obvious that further research will not support current confident assumptions that high daily wage rates translated seamlessly into equivalently high earnings. Such optimistic notions are belied by the sheer scale of short-term working revealed in building accounts. Even on large-scale, long-term projects, substantial swings in the numbers employed repeatedly took place during the course of each year as managers sought to match

the skills of their workforce to the amount and changing nature of the work that needed to be performed. For example, in the second half of May 1509 there were 158 masons, carpenters, sawyers, and labourers at work building King's College chapel in, Cambridge, but thereafter the size of the workforce declined sharply until it plateaued at 60–70 from early August to mid-December 1509, before rising strongly the following spring to reach a peak for the year of 173. Even greater fluctuations are evident in the number of masons working on the chapel at any one time in the same year, which plunged from a peak of 99 in late May 1509 to 39 in late September and 35 in early May 1510.[90] It is surprising that it proved so easy to recruit large numbers of skilled craftsmen at short notice to work on temporary contracts in such a modest town, especially as the early sixteenth century was a time when labour is thought to have been in relatively short supply and real wage rates high. However, a very similar picture of the preponderance of temporary employment also emerges from the building accounts of Eton College between 1442 and 1460, where no fewer than two thirds of the 293 masons hired over this period worked for less than 12 months and one third for less than four months.[91] Such discontinuous patterns of employment are a feature of building projects and were by no means limited to the middle ages. It has been estimated that those in the pool of masons making themselves available to help build St Paul's cathedral at the turn of the seventeenth and eighteenth centuries faced an 11 per cent chance of securing no work in the forthcoming week and only a 25 per cent chance of securing four days or more.[92]

VII

Virtually all attempts to measure standards of living in Britain since the late thirteenth century have been based on the daily wage rates of male workers in restricted sectors of just two industries. Although these sparse data have been repeatedly subjected to fundamental criticisms, reservations about their accuracy and representativeness have been diluted rather than strengthened by the passage of time. This once vibrant field is now beset by complacency as the same and similar data are routinely fashioned

into neat, easily manipulated basic forms and presented time and again in a narrow range of plain tables and figures, while being habitually endowed with expansive explanatory powers capable of facilitating comparisons of national welfare and growth over vast expanses of time and space.

The enduring dominance of these statistical apparitions in the face of mounting evidence of their abundant frailties, limitations and downright inaccuracies, highlights the intractability of the problems that can arise when economics, econometrics and even basic statistics are integrated into the study of history. The resulting clash of cultures is longstanding, deep-seated and multi-faceted, and because faults lie on all sides there are few signs of resolution. It most commonly presents itself as a conflict between those who believe that progress towards answering a host of key questions is assisted by counting, by the systematic collection and processing of data to throw light on quantifiable matters, and those who are sceptical of so-called number crunching, hostile to what they judge to be a surfeit of economics and, *a fortiori*, cliometrics, and who choose instead to deal primarily in adjective, adverb and anecdote.[93]

However, the conflict that has been featured in this chapter and other chapters in this volume is not just another skirmish in the perpetual discord between those who favour quantification and those who do not. It is a highly focussed debate conducted within the ranks of committed quantifiers who share many common interests and objectives. Nonetheless, its persistence highlights stark differences in the priorities, philosophies and working methods of the participants. There is more than a jot of justification in dividing the contending ranks into those who strive to maximise the scale, utility and applicability of their results, and whose priority is the amassing of the largest quantities of data and their conversion into precise, easily manipulated and highly generalisable forms, and those who pay closer attention to the nature of the singular, complex and often deficient sources from which the data have been extracted, and who therefore proceed more cautiously and expose and confront the complexities, confusions and apparent contradictions inherent in so much historical evidence.

However, there are good reasons to be optimistic about the potential for producing better metrics. For the prime obstacles to progress in this key area of economic and social history lie less in the intrinsic scarcity or

lack of quality of the sources than in the deficiencies in the databases that have so far been derived from them and the misguided ways in which they have been interpreted and applied. At present the task of estimating national living standards and a host of related core indicators is made to appear deceptively easy by the virtually universal reliance on an extremely limited range of basic data derived from the daily wage rates of builders employed on a handful of large, long-term 'heritage' projects and from that fraction of the agricultural workforce that worked exclusively for a daily wage. The scope for substantial improvement is threefold: first, in the quality of the core data on the incomes of these particular builders and agricultural labourers; second, in discovering far more about the composition and scale of the total incomes of the wider workforces in these industries; third, in the provision of data on the incomes of those engaged in a far wider range of occupations. Greater accuracy and representativeness will, therefore, come at the cost of simplicity.

To begin with the most frequently used data of all—the wages of building labourers and craftsmen employed on large-scale, long-term projects in southern England and London. The elimination or lessening of the many flaws and errors in the time series produced from them will necessitate the abandonment or drastic reform of all of the existing series and the creation of new. At the forefront must be the jettisoning of all the compilations that purport to record the daily wages of building labourers. So-called Building Labourers' Wage Rates or even Unskilled Building Labourers' Wage Rates remain, as they have for decades, not just the almost universal measure of the wages of the unskilled in the building industry but a representation of the living standards of the unskilled labouring poor in general.[94] Unfortunately, these data are actually an amalgam of the wages of unskilled and semi-skilled workers.[95] The abandonment of these severely misleading measures will leave a huge gap, but it can be readily filled by two new long-run time series providing the daily wage rates of genuinely unskilled building labourers and of semi-skilled assistants to craftsmen.

It is not only the quality of the data that requires improvement, but also the methods used to construct wage time series. As has been discussed above, the bewilderingly wide range of wage rates that were commonly paid to men assigned the same grade and practising the same craft

on the same site at the same time poses problems that have yet to be satisfactorily addressed.[96] For example, the current practice used to arrive at a single craftsmen's wage rate for each year of the series involves using one of a variety of devices such as the mean, median or mode that embraces the whole spectrum of wages paid to craftsmen of all specialisms and all levels of skill and productivity, a method that merges and then submerges the wages of substantial clusters of men, even in the same craft, like the carvers and the 'rough masons' grouped together as masons, whose daily pay differed by 40 per cent or even more.[97] A solution might lie in collecting wages into separate bands—say, high, medium and low—and producing a wage series for each band.

Advances can also be made by taking full account of any variations during the course of the year in the wages paid to building workers, as well as to the value of any bonuses and food or drink they were provided with. Most important of all, it is essential to include only the pay that workers actually received rather than the enhanced daily rates which in later centuries were often charged to institutions by the contractors who had supplied the workmen.[98]

Furthermore, daily wage rates may not always be the most reliable guide to remuneration in the building industry. On heritage building projects in London from the later seventeenth century payment by taskwork or piece rate became by far the most popular form of contract. It remains to be seen how common this practice was elsewhere in the country at this time and how it affected wages. At present it appears to have been a late development. Payment by the day was by far the most common form of contract in large-scale medieval building works, where even when builders did occasionally work by the piece the amounts they were paid were identical to those they would have received if they had been working by the day or the week.[99] A similarly overwhelming dominance of payment by the day is evident in the building accounts of King's College chapel, Cambridge, in the early sixteenth century, where the only workers on site to be paid by the piece were the highly skilled 'intallers' and carvers of stone, but even they were rewarded in this way for less than a sixth of their work.[100]

The ability to make the leap from real wage rates to real wages and living standards depends on sound information about the length of the

working year. However, as chapters in this volume have stressed, the attempts that have so far been made to estimate the length of the English working year over time are based more on speculation than hard evidence and thus inspire little confidence.[101] Those who have studied the history of the building industry and its workforce have frequently stressed the difficulty or impossibility of calculating earnings from daily wage rates because of the lack of information about how many days workers were employed. However, a closely-focussed, comprehensive analysis of the best accounting records left by a good sample of large-scale building projects in most periods holds out the prospect of quarrying an adequate quantity of hard data in this key area. For the fullest building accounts record on a weekly or fortnightly basis the names of all employees and their functions, together with the number of days that each worked and the wages and any other payments in cash and kind they received. This makes it possible to calculate accurately the number of days each employee had worked during the course of the year and the amounts that they earned.

These new data will provide robust evidence from across the centuries of the working year and annual earnings of those building craftsmen, assistants and labourers who were continuously employed on the same site. Much more information needs to be gathered from all periods, but that extracted to date indicates that the length of the working years of full-time builders from the middle ages onwards did not change anywhere near as substantially over time as it has become conventional to believe. It must be stressed, however, that these favoured workers who enjoyed continuous employment were far from typical, for the accounts also reveal that short-term working was rife among the rest of the workforce. Of course, it must be assumed that those who were laid off during the year usually found work elsewhere, but how much and at what pay cannot be discovered. Continuous employment was even less likely to be found in the building industry at large. Average builders and their earnings are destined to remain ethereal because they were primarily self-employed jobbing tradesmen who carried out a succession of small-scale local building jobs with their assistants, and for which they were far more likely to be paid by the piece than by the day. The contracts they entered into also frequently allowed extra income to be made by the supplying of

raw materials. Such jobs were by their nature intermittent, and in slack periods they were usually combined with farming or other occupations. Unfortunately, no records of the employment and earnings of jobbing builders over sizeable periods of time survive and few are likely ever to have existed, although fragmentary glimpses of something resembling their patterns of working were made available in abbreviated form long ago by Thorold Rogers who extracted them from the records of Oxford and Cambridge colleges.[102]

Any study of the length of the working year must take account of voluntary unemployment—the backward sloping supply curve of labour. The case has often been made that a preference for leisure over work emerged when times were good and food was cheap, especially in the centuries before a sufficiently wide range of popular consumer goods became available at attractive prices to tempt those who were enjoying a modestly comfortable subsistence into further industry.[103] However, the degree to which a preference for leisure was exercised and when, where and by whom, awaits a systematic analysis of surviving employment records in order to discover the number of days that were actually worked in a variety of circumstances and occupations. But so far this important issue has been dealt with primarily by using a mixture of contemporary comment and economic reasoning that is particularly suited to independent urban artisans and craftsmen who were able to work to their own irregular patterns. This may be acceptable for many workers in towns but it is obvious that any preference for leisure among the rural population is extremely hard to measure because people who were turning down opportunities to work for wages were often working on their own lands rather than idling.

However, the nature of the phenomenon can be analysed with considerable confidence through the accounts of industrial enterprises that contain detailed records of the working patterns of named employees who had negligible alternative sources of income. Coalmining accounts, for example, have revealed clear evidence of a classic backward sloping supply curve for labour where the intensity of work was dependent on the level of wages earned by different grades of miners. There is no trace of its existence among the colliers and carpenters in the primitive bell-pits at Beaudesert (Staffs) between 1566 and 1586, a time of low and falling

living standards. In these small operations the regular employees, whose daily wages were little or no higher than those paid to local agricultural labourers, generally worked for more than 250 days a year, despite intermittent technical problems causing unavoidable interruptions to production. Later, however, in larger collieries that required substantial capital investment, a pronounced but highly selective preference for leisure over additional earnings can be found. Naturally the owners of these costly enterprises were anxious to eradicate any voluntary absenteeism and ensure continuous working, particularly by the highly skilled and highly paid hewers who cut the coal from the face and on whose efforts the productivity of the colliery and the gainful employment of the rest of the workforce depended.[104] But mine owners, unlike the managers of building projects, were far from successful in imposing discipline on their whole workforce, and the bemoaning of the persistence of a strong negative correlation between effort and earnings among hewers is a commonplace of seventeenth- and eighteenth-century mining literature. The reasons for the concerns of the mine owners are confirmed in the detailed accounts of Gatherick, Northumberland, in 1683–1684. There the lowest paid workers, the banksmen and watermen who wound up the coal and stacked it on the surface and wound up water to drain the workings, were the most industrious, working an average of 273 days in the year for an average of just 6d per day. The putters, who barrowed the coal underground from the coal face to the bottom of the shaft, worked an average of 230 days and earned 8d per day. But the hewers, who earned 13–14d a day, worked an average of just 200 days in the year, made up primarily of four-day weeks. The hewers' preference for leisure cost them each around 20d a week in lost earnings, but in the course of the year they still earned 60 per cent more than the banksmen and watermen and 50 per cent more than the putters. That the Gatherick hewers, in classic fashion, set a target for their earnings is demonstrated when they increased their labours from four days to six and a half shifts a week in order to match their previous earnings when coal cutting had to be halted and they were forced to accept lower pay working as 'shovelmen' digging a new shaft.[105]

The longstanding dependence on the defective series of so-called Building Labourers' Wages highlights the paucity of statistical information on the wages and incomes of the unskilled and labouring poor.

Although there have been a host of illuminating studies of the lives and welfare of the rural and urban poor there has been scant systematic analysis of the scale of their meagre incomes. The proposed construction of an index of the day wages paid to unskilled building labourers together with analysis of the continuity of their employment will mark an important step forward. In addition there is considerable scope for substantially enhancing the quality of the data on the incomes of urban labourers and the rural landless and smallholders, although for many intermittent employment in a range of low-paid jobs and the reliance of their household economies on a makeshift bundle of paltry money-making activities combined with support from the parish is bound to make robust reconstructions frustratingly difficult to achieve.[106] Penetrating beams of light have frequently been cast on this dark underworld of poverty and insecurity by powerful, albeit non-quantitative, testimonies that have shown it to be far removed from the visions conjured up by cheery notions of the availability of regular employment in town and country for all who sought it.[107] There is much to be gained from combining the approaches of social, economic and econometric historians, although an adequate compilation of the patchworks of jobs and income cobbled together by adult males and their wives and children requires a level of quantitative assessment that may prove unattainable. But it was the way of life for millions of people and can no longer be denied the statistical analysis it warrants.

A promising start can be made by studying the records of industrial employers and city authorities. As the accounts of Gatherick colliery have shown industrial enterprises often recorded rates of pay as well as the numbers of days that were worked. The 6d per day earned by the banksmen and watermen is only half of the wages claimed for southern building labourers in Allen's series, but this is offset to some extent by the virtually continuous employment the colliery offered. Donald Woodward's study of northern towns has helped to correct the considerable southern bias in wage data by supplying valuable information on the genuinely unskilled labouring poor.[108] He found that the gangs of labourers employed by Trinity House, Hull, were recruited largely on an *ad hoc* basis to carry out tasks such as shifting ballast in the harbour, keeping the town's fresh-water channel clear, raising the mayor's barge after it had

sunk in a storm, and cleaning out the 'old wives' privy house'. Unlike the employment offered by many industrial operations the jobs offered by Trinity House were generally short-lived, with many lasting only a few days. Although a small number of men were treated preferentially by the corporation, which called them 'our labourers', none secured more than 185 days employment in any year between 1652 and 1679, and the total amount of work obtained by many of the casuals can be counted in days and weeks rather than months. The pronounced seasonal pattern of hiring by the Hull Corporation resulted in only 12.3 per cent of the 51,680 man days it commissioned between 1563 and 1578 being worked in the three winter months, 23.9 per cent in the three spring months, 37.2 per cent in the summer months and 26.6 per cent in the autumn.[109]

The lack of hard information on the incomes of the urban labouring poor across the centuries is matched by the absence of long-run statistical series of the cash and subsistence generated by land and livestock, which for most of the seven centuries provided either the main or a substantial supplementary income for millions. In recent years major progress has been made in the generation of macroeconomic aggregates of the total output of Britain's agriculture from the thirteenth century onwards, but the results remain contested and, importantly, do not provide a ready access to the incomes agriculture and horticulture supplied to the owners and occupiers of individual farms and acres, from cottagers to gentry.[110] There have, of course, been many informative attempts to model farm production and profits,[111] and these will make a good base from which to begin the generation of this vital information. There can be no doubt that the most significant enhancements in knowledge of the incomes of casual agricultural labourers will come not from improved wage records but from better information about the amounts of cash and subsistence they received from the varying numbers of acres and livestock they held, as well as the contributions made by the earnings of women and children and from bye-employments.[112] The reliance on easy pickings from the daily wage rates of builders and agricultural labourers has also encouraged the persistence of the patchy nature of information on the incomes of the very substantial numbers of commercial farmers beneath the gentry who, according to Gregory King, accounted for a quarter of all households in 1688.[113]

There is a pressing need to create a far better representation of the population as a whole across seven centuries of massive economic and social change by moving far beyond builders and agricultural labourers to gather information on the incomes provided by a far greater range of occupations and social strata. Fortunately, the recent availability of a wealth of information on the occupational structure of Britain since the late fourteenth century will enable the incomes of workers in a wide span of occupations to be matched to the proportions of the population who received them.[114] Knowledge of crucial issues such as the changing social distribution of wealth and income across the centuries, levels of inequality, the rewards of labour in different sectors of the economy and different geographical regions, and the measurement of national living standards have all suffered from a lack of adequate data. A renewed effort to collect them will eventually open up the prospect of sufficiently robust income-based estimates of Gross Domestic Product per head to compare with output-based estimates.

As more series are produced of the wages and incomes of those with varying levels of skill in a far wider range of occupations, and greater account taken of the number of days worked, of the impact of unemployment and underemployment, of extra payments for overtime and bonuses, of the provision of food and drink, of income and subsistence derived from land and livestock and from alternative and additional streams of household income, and of much, much more besides, the information essential for the adequate measurement of wages, real wages and standards of living will become more numerous and diverse, more untidy and more difficult to manipulate and to compare. Calculations will have to acknowledge margins of error and a greater dependence will have to be placed on judgement. Complexity and diversity will be added to a process that is currently presented as deceptively simple and orderly. In other words, the revised and enlarged body of information that will be gathered will possess many of the characteristics that the more zealous quantifiers have successfully striven to eliminate. Yet, uncomfortable as it may be, when the methods adopted to count history place precision, consistency and comparability above accuracy it is time to abandon them.

Notes

1. Nonetheless, the databases of prices used to calculate the costs of living are still not satisfactory. For example, Rappaport has calculated that if retail prices instead of less appropriate wholesale prices are used to calculate the real wages of skilled and semi-skilled building workers they would decline by 29 per cent in London during the Tudor period, which is only half the decline found by Phelps Brown and Hopkins when they used wholesale prices to calculate the real wages of similar workers in southern England (Rappaport (1989), *Worlds within Worlds*, Chapter V and Appendix 3). By positing a few more relatively minor changes in their baskets of consumables, Rappaport also suggests the actual decline may have been as little as 17 per cent. See also the tailoring of baskets of consumables to different life-styles and incomes in Allen (2009), *British Industrial Revolution*, pp. 35–9, and the improvements in the constituents and weighting of the cost of living index adopted in Clark (2005), 'Condition of the Working-Class', pp. 1307–40. For Crafts the solution to disputes over English real wages between 1750–1850 lies in improving the data on the cost of living rather than incomes (Crafts (1989), 'Real Wages, Inequality and Economic Growth in Britain', pp. 75–95), but see the critical the responses to his essay in the same volume by Morsa (1989), 'Is it Justified to Use Real Wages as a Standard of Living Index?' and Lucassen (1989), 'The Standard of Living Debate'.
2. Phelps Brown and Hopkins (1981), *A Perspective of Wages and* Prices, p. 1; Boulton (1996), 'Wage Labour in Seventeenth-Century London', p. 268.
3. See, for example, the chapters in this volume by L Mocarelli and K Deng and P K O'Brien that criticise the quality of the wage data used for eighteenth-century Milan and pre-modern China respectively.
4. Unemployment and underemployment were key elements in the famous debate about the standard of living in the industrial revolution, but they have yet to receive adequate attention in statistical compilations of wages and prices. Taylor ed. (1975), *The Standard of Living in Britain,* contains a selection of articles from the first stage of the long-running and wide-ranging debate.

5. Knoop and Jones (1949), *The Medieval Mason*, pp. 212–13, found that in the later middle ages the whole wage of building workers was commonly, although not exclusively, paid in money, but 'in the sixteenth century the practice of boarding the workers and paying them only a reduced money wage was much more commonly adopted'. The provision of food and drink and the payment of overtime and bonuses could make a substantial difference to a worker's total remuneration. For example, the wage rates specified in 1564 by London aldermen for a range of building crafts were 13d a day without food and 9d with food. The accounts of London livery companies at the same time frequently contain entries for money spent 'for bread and drink among the workmen' and bonuses and overtime were also paid for working at mealtimes and on Sundays and holidays (Rappaport (1989), *Worlds within Worlds*, pp. 129, 152).
6. R. C. Allen, 'Wages in London and Southern England, 1259–1914'. (*Global Prices and Incomes Database*).
7. Knoop and Jones (1949), *The Medieval* Mason, pp. 84, 109; J. Z. Stephenson, 'In Search of the Average Craftsman', Chapter 6 below.
8. Phelps Brown and Hopkins (1981), *A Perspective of Wages and* Prices, pp. 1–2.
9. Boulton (1966), 'Wage Labour in Seventeenth-Century London', pp. 275–81; Rappaport (1989), *Worlds within Worlds*, pp. 129–30.
10. This is revealed in many local studies drawn from across the centuries. See, in particular, Hassell Smith (1989), 'Labourers in Late Sixteenth-Century England' and Yamamoto (2004), 'Two Labour Markets in Nineteenth-Century English Agriculture'.
11. Humphries and Weisdorf (2015), 'Wages of Women in England' Humphries and Weisdorf. (2017), 'Unreal Wages?'. See also Claridge and Langdon (2015), 'Composition of *Famuli* Labour'.
12. For example, it has been estimated that in c.1300 wage labour was only 20–25 per cent of total labour spent producing goods and services (Britnell (1993), 'Commerce and Capitalism in Late Medieval England'), and that it was only by the late eighteenth century that two thirds of both the urban and rural population had become wage dependent (Rule (1986), *The Labouring Classes in Early Industrial England*, pp. 18–19).
13. Allen (2009), *British Industrial Revolution*, p. 33.

14. *Ibid.*, pp. 35, 38. See also Allen (2008), 'Real Wage Rates (historical trends)', in which indices of real daily wage-rates are transmuted into indices of real wages, which are then equated with real earnings, all without any significant discussion of the number of days worked or of subsidiary sources of income.
15. Clark (2007), 'Long march of history' p. 127.
16. Clark (2007a), *Farewell to Alms*, pp. 21–2.
17. Jacobsen and Skillman (2004), *Labour Markets and Employment Relationships*, pp. 1–12.
18. Bewley (1999), *Why Wages Don't Fall*; de Vries (1994), 'How did the Pre-Industrial Labour Markets Function?'.
19. Phelps Brown and Hopkins (1981), *A Perspective of Wages and Price*, pp. 7–13. In the Phelps Brown and Hopkins series the daily wage of building craftsmen in southern England remained at 6d per day from 1412 to1532 and at 12d per day from 1580 to 1629, while that of labourers remained at 4d from 1412 to1545 and at 8d from 1580 to 1626.
20. *Ibid.*, pp. 7–8.
21. Phelps Brown and Hopkins (1981), *A Perspective of Wages and Prices*, pp. 13–59.
22. Allen (2002), 'The Great Divergence'; idem, (2007), 'How Prosperous were the Romans?. Other extremely wide-ranging studies include, Allen et al. (2011) 'Wages, Prices and Living Standards in China, 1738–1925: in comparison with Europe, Japan and India'; Özmucur and Pamuk (2002), 'Real wages and standards of living in the Ottoman Empire'; Scheidel (2010), 'Real Wages in Early Economies'.
23. For example, see Allen (2009), *British Industrial Revolution*, for the contention that the 'high wage economy' of preindustrial Britain fostered the industrial development and technological innovation that led to the industrial revolution.
24. Malthus, *Principles of Political Economy*, 2nd ed. (1826), c.IV, sec. IV, p. 204 (cited by Phelps Brown and Hopkins, A *Perspective of Wages and Prices*, p. 61).
25. Clark (2007), 'The Long march of history'; Clark (2005), 'Condition of the Working-Class in England'; R.C. Allen, 'Wages in London and Southern England, 1259–1914', *Global Prices and Incomes Database.*
26. William Harrison, writing in the mid-1570s, supplied a clear explanation of why ample supplies of cheap labour and increasingly expensive

agricultural produce enriched most farmers, husbandmen and yeomen while impoverishing those who had little or no land, sold their labour and had to purchase their subsistence (Harrison, *The description of England*, pp. 200–2). See also Blonde and Hanus (2010), 'Beyond Building Craftsmen' which uses the rich sources of the city of 's-Hertogenbosch in the southern Netherlands to reveal that the steep drop in the purchasing power of wage labourers from 1500–60 was not shared by the majority of the urban populace who fared appreciably better. The authors question whether the trends sketched in numerous real-wage studies illuminate more than the experience of a particular, and in the early modern Low Countries, a relatively small–group of (semi- and unskilled) wage labourers. See also, Shepherd (2015), *Accounting for Oneself* which documents the declining real incomes of English labourers in the same period alongside the sharply rising incomes of social and economic strata above them.

27. Allen (2002), 'Great Divergence', pp. 412–3.
28. Woodward (1981), 'Wage Rates and Living Standards in Pre-industrial England'.
29. Woodward (1995), *Men at Work*, p. 244.
30. Boulton (1996), 'Wage Labour in Seventeenth-Century London', pp. 271, 273.
31. In addition to the articles published in this volume see, for example, Ramsey (1963), *Tudor Economic Problem*, pp. 32, 42, 138; Everitt (1967), 'Farm Labourers', pp. 396–465; Clay (1984), *Economic Expansion and Social Change*, pp. 28–31; Malcolmson (1982), *Life and Labour in England,* pp. 23, 145–7; Wrightson (1982), *English Society,1580–1680*, pp. 33–6. Many important articles were printed in Scholliers ed. (1989), *Real Wages in 19th and 20th century Europe* and Scholliers and Schwarz eds. (2003), *Experiencing Wages*.
32. Phelps Brown and Hopkins (1981), *A Perspective of Prices and Wages*, p. 13.
33. Mantoux (1906), *La Révolution Industrielle au XVIIIe Siècle,* cited in Gilboy (1934), *Wages in Eighteenth-Century England,* p. xxvi.
34. Gilboy (1934), *Wages in Eighteenth-Century England.*
35. The debate in the standard of living in the industrial revolution has recently reignited over the question of whether eighteenth-century England had a 'high wage' economy: Humphries (2013), 'The lure of aggregates': Allen (2015), 'The high wage economy'.

36. The relationship between real wage rates and GDP per head is discussed in Broadberry et al. (2015), pp. 247–78. The misleading title of 'building labourers' or 'unskilled building labourers' given by Phelps Brown and Hopkins, Allen, Clark and many others to their daily real wage series, and followed in Broadberry et al. (2015), *British Economic Growth*, is used for the sake of convenience in the discussion in this section. The composition of these so-called 'labourers' indices, which include the wages of semi-skilled workers, is examined later in this essay and more fully in the essay by J. Z. Stephenson, 'The pay of labourers and unskilled men on London building sites, 1650–1800' published in this volume.
37. Broadberry et al. (2015), *British Economic Growth*, pp. 203, 252–5.
38. *Ibid.*, Table 5.06, p. 205.
39. The indices of Phelps Brown and Hopkins, Clark, Allen are conveniently presented and discussed in *British Economic Growth*, pp. 252–55. Despite some differences they all followed similar patterns.
40. *British Economic Growth*, pp. 247–78.
41. *British Economic Growth,* p. 277. The same estimates and arguments about the massive changes in the length of the working year are reasserted and expanded in Broadberry et al. (2017), 'Clark's Malthus Delusion', pp. 18–19.
42. These estimates of the length of the late medieval and mid-Tudor working year, used by Allen and Weisdorf (2011), 'Was there an industrious revolution before the industrial revolution?', were derived from Blanchard (1978), 'Labour Productivity and Work Psychology'.
43. Saltmarsh (2015), *King's College Chapel*, pp. 223–4.
44. Knoop and Jones (1949), *The Medieval* Mason, p. 130.
45. Saltmarsh (2015), *King's College Chapel,* pp. 203–5.
46. The nominal wages have been taken from Allen, 'Wages in London and Southern England, 1259–1914', *Global Prices and Incomes Database,* and the nominal GDP per head data have been calculated using the national GDP figures and the population totals given in *British Economic Growth*, Table 5.06, p. 205.
47. Contemporary international data on the annual earnings of labourers are sparse, but there are robust data on the gross annual earnings, prior to deductions, of construction carpenters (*International Average Salary Income Database,* International Labour Organisation). The present day GDP data and the earnings of carpenters in the advanced economies of

the United Kingdom, Norway, Germany, the United States and Australia, and in the less developed economies of Russia, Hungary, Latvia and Lithuania are provided by the World Bank. Fortunately, the comparison is made even closer by the fact that the historical data on wages of English building craftsmen is heavily dependent on carpenters. Phelps Brown and Hopkins (*A Perspective of Wages and Prices*, p. 6) reported that the wages of building craftsmen tended to move in concert, and that when there was divergence they generally followed the carpenters' rate as it provided the most continuous record.

48. Hatcher (1994), 'England in the Aftermath of the Black Death', pp. 20–5.
49. Rogers (1949 ed.) *Six Centuries of Work and Wages*, pp. 229–30; *idem* (1882), *History of Agricultural Prices*, i, p. 300.
50. Beveridge (1936), 'Wages in the Winchester Manors', pp. 56–7.
51. *Ibid.*, p. 37.
52. Farmer (1991), 'Prices and Wages, 1350–1500', pp. 467–72.
53. *Ibid.*, pp. 469–70. See also the discussion of bonuses paid to building workers in Knoop and Jones (1949), *The Medieval Mason*, pp. 14–16.
54. Stephenson (2018a), 'Real' Wages?'. Allen has countered that the difference between the contractors' charges and the pay the workers received was considerably smaller (Allen 2018), 'Real Wages Once More'.
55. Woodward (1981), 'Wage rates and living standards', 32–4.
56. Campbell (1747), *The London Tradesman*, p. 161.
57. Rogers, ed. (2013), *The Wardens*, p. 169.
58. Woodward (1981), 'Wage rates and living standards', pp. 30–42. It has been argued that the scale and variety of additional sources of income help to explain why the standards of living of London craftsmen must have fallen much less sharply in the course of the sixteenth century than the precipitously plunging real wage indices would suggest (Rappaport 1989), *Worlds within Worlds*, pp. 152–3.
59. For example, Broadberry et al. (2015) *British Economic Growth*, follows Allen and Clark in taking these conflated data to be the 'real wage rates for unskilled building workers'. See also, Allen (2002), 'The Great Divergence'; Allen (2009), *British Industrial Revolution;* Clark (2005), 'Condition of the Working Class'. A notable exception is Rappaport (1989), *Worlds within Worlds*, pp. 145–8, 401–7.

60. Boulton (1996), 'Wage Labour in Seventeenth-Century London', p. 276.
61. Stephenson, 'The Pay of Labourers and Unskilled Men on London Building Sites, 1650–1800', Chapter 6 below.
62. Campbell (1747), *The London Tradesman.*
63. Knoop and Jones (1949), *Medieval Mason*, pp. 70–1, 79–80, 149–50. See also Woodward (1995), *Men at Work*, p. 96 and Rappaport (1989), *Worlds within Worlds*, pp. 128–9.
64. Clark (2007), 'Long March of History'.
65. Clark (2001), 'Farm wages and Living Standards', pp. 488–9.
66. Malcolmson (1991), *Life and Labour*, 37–8; K Wrightson (1982), *English Society, 1580–1680* (London), p. 34; Rule (1982), *The Labouring Clases*, p. 41 are among many who have stressed marked seasonal variations in employment and pay. J Burnette, 'Seasonal Patterns of Agricultural Day-Labour at Eight English Farms, 1835–44', printed in this volume, confirms that into the mid-nineteenth century 'Agriculture is a highly seasonal industry. The timing of tasks is largely determined by the natural growing cycle, and labour demand is uneven across the year'. Yamamoto (2004), 'Two Labour Markets' explores the differing characteristics of the separate labour markets, that existed for those who were employed throughout the year (core workers) and those employed only in the busiest season (casual workers). Before the nineteenth century farm servants retained on long-term contracts comprised a significantly higher proportion of the national agricultural labour force which further restricted the employment of casual labourers outside of the peak seasons. Before the fifteenth century the compulsory labour services of tenants further reduced the demand for casual labourers by contributing a substantial proportion of the labour required on manorial demesnes.
67. Clark (2001), 'Farm wages and Living Standards', pp. 487–92.
68. Clark (2007), 'Long March of History', pp. 99, 126.
69. See Chapter 9 below.
70. See Chapter 9 and 'Postscript', below.
71. Yamamoto (2004), 'Two Labour Markets', pp. 100–102.
72. Malcolmson (1981) *Life and Labour*, p. 37.
73. Clark (2007a), 'Long March of History', p. 110.
74. Newman (2001), 'Work and Wages', p, 367; Britnell (2015), 'Labour Turnover and Wage Rates'; Dymond, ed. (1996), *The Register of Thetford Priory*.

75. Newman (2001), 'Work and Wages', p. 374, Britnell (2015), 'Labour Turnover and Wage Rates'.
76. Burnette (2006), 'How skilled were agricultural labourers?'. Ploughmen and mowers in particular commanded premium rates.
77. See S King and C Muldrew (2004), 'Cash, wages and the economy of makeshifts in England, 1650–1800', Chapter 10 in this volume.
78. For a more substantial critique of Clark's farm wage series see C. Muldrew, 'What is a money wage? Measuring the earnings of agricultural labourers in early modern England', in this volume.
79. See, for example, Beveridge (1936), 'Wages in the Winchester Manors', pp. 38–9, 43; Farmer (1991), 'Prices and Wages', pp. 467–83, 516–19.
80. The production of plausible results using Clark's imputed ratio of day-wages to threshing payments is inhibited by what appear to be substantial and extremely puzzling variations over time in productivity and wide variations in the rates paid on manors that were sometimes located close to each other (Clark (2007), 'Long March of History', pp. 99–110, 129–34; Hatcher, 'Unreal Wages', Chapter 9 below.
81. Hatcher, 'Unreal Wages, Chapter 9 below. The tiers of skill and seniority, and therefore remuneration, among farm servants are examined in Claridge and Langdon (2015), 'The Composition of *Famuli* Labour'.
82. Dyer (2015), 'A Golden Age Rediscovered'.
83. Clark (2001), 'Farm Wages and Living Standards', 488–9; Allen (2009), *British Industrial Revolution*, pp. 38–43.
84. Allen and Weisdorf (2011), 'Was There an "Industrious Revolution"?'
85. *Ibid.*, 716.
86. *Ibid.*, 728.
87. Above, pp.
88. Campbell (2005), 'The Agrarian Problem of the Early Fourteenth Century'.
89. Allen (2009), *British Industrial Revolution*, pp. 25–56; Allen (2015), 'The High-Wage Economy'.
90. Saltmarsh (2015), *King's College Chapel,* pp. 217–18. Chapter 7, 'The Input of Labour and its Measurement', provides a wealth of additional data on the huge fluctuations in the numbers of craftsmen, assistants and labourers employed building the chapel between 1508 and 1515.
91. Knoop and Jones (1949), *Medieval Mason,* pp. 140–1. Employment for short periods usually involved the working of full weeks.

92. Stephenson (2018a), *Contracts and Pay*.
93. Dyer (2015),' Golden Age Rediscovered' is an exemplar of the non-quantitative type of approach. See the Postscript to Hatcher, 'Unreal Wages', Chapter 9 below, for a rebuttal of Dyer's methods and arguments. For a more intellectually powerful, though overstated, case against quantitative history see Boldizonni (2011), *The Poverty of Clio.*
94. For example, Broadberry et al. (2015), *British Economic Growth*, pp. 247–78, relies solely on the 'broadly similar' real wage series produced by Phelps Brown and Hopkins, Allen and Clark in its comparative analysis of real wages and GDP per head, believing them to be the 'real wage-rates of unskilled building labourers'.
95. See also Stephenson, 'Pay of Labourers', Chapter 6 below.
96. See Stephenson, 'In Search of the Average Craftsman', chapter 5 below.
97. Knoop and Jones, (1949), *MedievalMason*, pp. 81–90.
98. Stephenson (2018),'Real Wages?'.
99. Knoop and Jones (1949), *Medieval Mason*, pp. 112–13.
100. Saltmarsh (2015), *King's College Chapel*, p. 215. Taskwork, however, usually prevailed among masons working in the stone quarries and the men employed felling trees and sawing wood in the forests.
101. Discussed above.
102. *Rogers (1882), History of Agriculture and Prices*.
103. For example, Hatcher (1998), 'Labour, Leisure and Economic thought'; Furniss (1965), *The Position of the Laborer*; Coleman (1956), 'Labour in the English Economy'; Mathias (1979), 'Labour and Wages in Theory and Practice'; Reid (1976), 'The Decline of St. Monday'; Clarkson (1971), *The Pre-Industrial Economy in England,* pp. 43–4.
104. Hatcher (1993), *History of the British Coal Industry,* pp. 388–90; Hatcher (1998), 'Labour, Leisure and Economic Thought', pp. 87–91; Kirby (2012), 'Attendance and Work Effort'.
105. Northumberland County Record Office, Society of Antiquaries, ZAN B/18/1/19.
106. Langdon (2011), 'Minimum Wages and Unemployment Rates', demonstrates the potential for extracting data on unskilled labour, including that performed by women and children, from pre-Black Death building accounts.
107. For example, compare Hindle (2004), *On the Parish?,* with the optimistic employment assumptions underlying Allen and Weisdorf (2010), 'Was There an 'Industrious Revolution?'.

108. Woodward (1995), *Men at Work.* Appendix 1, provides the daily wage rates of craftsmen and labourers between 1450 and 1750 in nine northern towns.
109. Woodward (1995), *Men at Work*, pp. 94–106, 263.
110. For recent major contributions see Broadberry et al., *British Economic Growth*, chapter 3; Clark (2014), 'The Macroeconomic Aggregates for England'; *idem* (2018), 'Growth or Stagnation?; Broadberry et al. (2017), 'Clark's Malthus Delusion'.
111. See, for example, Bowden (1990), 'Agricultural Prices, Farm Profits, and Rents' and Turner, Beckett and Afton. (2001), *Farm Production in England.*
112. For an illuminating survey of the variety of sources of income of farm labourers see Everitt (1967), 'Farm Labourers', pp. 296–465. It is well-attested that farming as well as horticulture made significant contributions to the household budgets of urban as well as rural labourers and craftsmen: Woodward (1981), 'Wage rates and living standards'; *idem.* (1995), *Men at Work*, pp. 237–8.
113. Gregory King's 'Scheme of the Income and Expense of the several Families of England … for the Year 1688' is printed in Holmes (1977), 'Gregory King and the Social Structure of Pre-Industrial England'.
114. Summary data are given in Shaw-Taylor and Wrigley (2014), 'Occupational Structure and Population Change', pp. 53–88. The website of the Cambridge Group for the History of Population and Social Structure provides details of many further relevant publications and working papers.

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3

The Tyranny of Numbers: Are There Acceptable Data for Nominal and Real Wages for Pre-modern China?

Kent Deng and Patrick K. O'Brien

Among the most widely cited bodies of evidence for rejecting one thesis of the California School that the 'Great Divergence' between early modern China and Western European economies are relative levels of incomes from real wages afforded by economies for their populations at both ends of Eurasia. While we recognise the heuristic illumination embodied conceptually sound and quantifiable exercises in comparative economic history, the existing primary sources for and historiography on Imperial China lead us to reluctantly conclude that real wage incomes available as plausible conjectures for some European economies have not been and cannot be constructed for Ming-Qing China. Euro-centred concepts and misunderstood statistics will not settle the Great Divergence debate.

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Introduction

Since 2000 scholars of world/global history have been debating the 'Great Divergence' or the meta questions of when, how and why two major civilisations (Western Europe and the Chinese Empire) diverged from each other in rates and patterns of economic development. In order to depart from a long and eminent Eurocentric historiography and to offer a statistically based explicandum that is culturally and ideologically neutral for academic investigation into the Great Divergence, the modern debate has concentrated upon the measurement and comparison of real wage levels. Provided reliable databases for normal wage rates and cost of living indices could be constructed to represent incomes from wages paid to unskilled and skilled labour in Qing China (1644–1911), an exercise in reciprocal comparisons could conceivably avoid Eurocentrism and contribute new, reliable and useful knowledge to the ongoing debate on divergence by allowing historians, economists and other social scientists to draw inferences about the evolution over time in relative standards of living, labour productivities and levels of industrialisation.

Unfortunately, and for reasons familiar to previous generations of economic historians, elaborated below, the data available in primary and secondary sources for Qing China either for *nominal* wage rates or for the prices of commodities and services purchased by families dependent on wages for incomes and expenditures falls way below the standards *required* for valid and acceptable historical evidence. We will now summarise the reasons why this is and will remain the case despite the recent wave of research and investigation into labour markets and wages conducted by economic historians at American, British and Japanese universities.

So far, the debate has raised questions of (1) *what* separated China and Western Europe for growth and development, and (2) *when*, *why* and *how* did these major civilisations diverge from each other.[1] In a laudable endeavour to depart from dominant Eurocentric hypotheses, methodologies and conclusions by finding more culturally and ideologically neutral parameters for economic performance, many academics have hoped to find the silver bullet in 'real wages',[2] a subject area that predates debates on the Great Divergence.[3] This aspiration is based on the premise that

analysis of the Great Divergence is best conducted not in terms of variations in capital formation, economic structure, urbanisation and commerce but by differences in labour productivity as demonstrated quantitatively by variations in real wages or the real purchasing power of payment for unskilled labour.[4] We only need to identify benchmark wages to work out a definitive international pecking order that will serve as the explicanda for the Great Divergence questions of 'when', 'why' and 'how' that discontinuity occurred. Pomeranz's original agenda for a study of endowments (such as coal), the state and commerce has been largely abandoned. Furthermore, variations in real wages have been viewed by many as shorthand for industrialisation or no industrialisation in a simple and elegant logic: A high wage economy was likely to be industrialised; a low wage one was not. This distinction has, moreover, refuelled recent debate on 'little divergences' within Europe and Asia.[5]

A Weak State That Produced Poor and Inadequate Records

Too many publications on China's past give readers an impression that the Empire was organised vertically and efficiently from the top of society.[6] After all, China ran the longest lasting bureaucracy, which may look more like a fiscal state, under one government than anywhere else in the world at that time. This illusion has been created by studies that concentrate on China's imperial court which indeed conveys an image of wealth, power and efficiency.[7] Nevertheless, China's imperial state was in reality tiny, weak and inefficient. This has serious implications for quality, range and availability of China's official statistical sources.

First of all, the Qing state, for example, withered and virtually abandoned any attempt to rule her vast empire. Fewer than 30,000 bureaucrats, including all civilian officials and military officers were on its payroll at any given time from 1644 to 1911. In the capital Beijing, 2546 key administrators were in charge of all government departments. In 1700, during the early Qing, when China's population had not yet taken off, the ratio of population to officials was 2300:1 and that had widened to

15,136:1 by 1833.[8] The Qing establishment simply did not employ the minimum manpower required to monitor the economy. Most subjects never in their lifetime met a single Qing official. Village autonomy was not only tolerated but also encouraged in order to retain an imperial state that was small and cheap.[9]

Second, the Qing state also gave up monitoring its fiscal base. Qing decision-makers deliberately reduced the overall tax burdens by abolishing corvée on all artisans and by freezing total annual tax revenue.[10] As a result, the Qing total annual direct tax revenues were capped at 30 million *taels* of silver (1125 metric tons) for the next 140 years despite rapid growth in population, arable land area and GDP. State revenues counted for 1–5 per cent of the Qing total GDP and was so easily realised that any serious monitoring was redundant.[11] The fact that the traditional poll tax was combined with land tax and born by arable land acreage (*tan ding ru mu*) removed any institutional need even for a population census. A frozen total tax revenue disconnected government income from land registration and cadastral surveys. In doing so, the Qing state no longer kept information on the pulse of the taxpaying agrarian and urban households.

Finally, there was a standard practice for the imperial authorities to destroy all official archives after an official dynastic history was compiled. This periodic destruction of primary sources was based upon the Confucian premise that political centre must dictate the 'truth' in order to eliminate future controversy and debate.[12] All Qing official data have long been regarded by historians as dodgy, because bureaucrats lacked incentives to keep accurate records.[13] It is not surprising, therefore, that there is not a single reliable macro-economic dataset or a time series for the entire Qing Period from 1644 to 1911.[14]

Regional Diversity and Weak Integration

There were at least eight distinctive economic zones within imperial China's territorial boundaries.[15] Some integration may have occurred within zones.[16] Zones might also be linked in one way or another, but they were not in any sense integrated before the 1920s.[17] The principal-agent problem was deep rooted.[18] It is thus unhelpful to over-

generalise the lower Yangtze case for the whole empire, a common mistake made by some economists.[19] China-wide market integration under the Qing is merely a modern fantasy which is now seriously challenged.[20] Even within the Yangtze Delta zone, prices of the common commodity rice were clearly not well integrated (see Figs. 3.1 and 3.2).

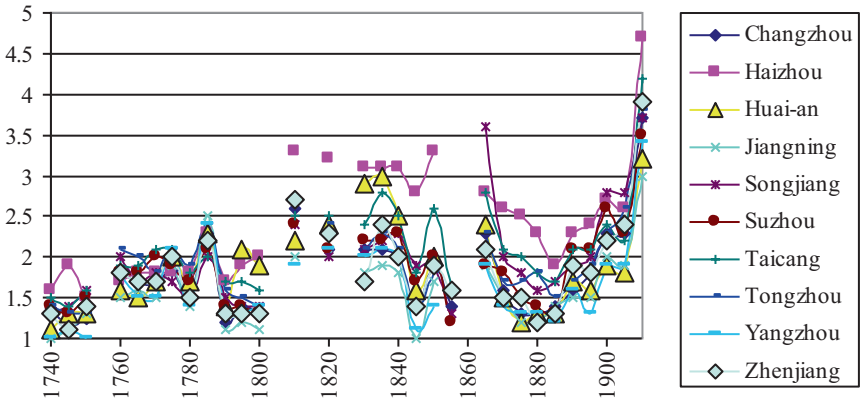

Fig. 3.1 Urban Prices of Rice per *Picul* (*Shi*) in Jiangsu Province, 1740–1910. (Source: Yejian Wang (2013). Note: Prices of the Ninth Month, in silver *tael*. Rice in picul (*shi*). Locations are seats of governments of named prefectures)

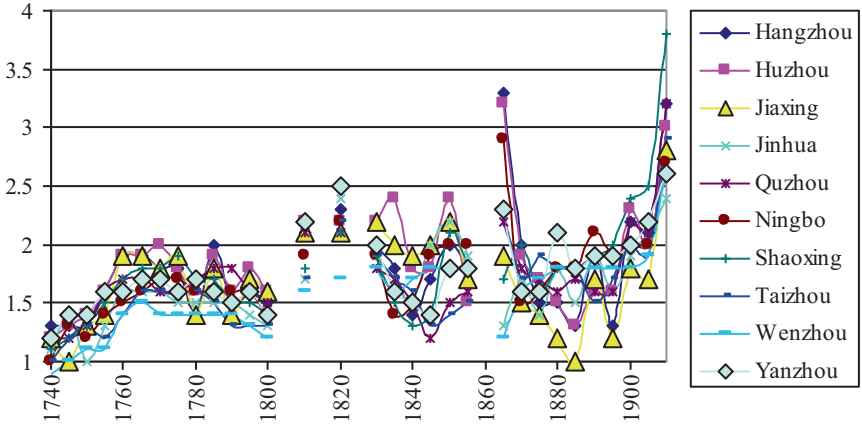

Fig. 3.2 Urban Prices of Rice per *Picul* (*Shi*) in Zhejiang Province, 1740–1910. (Source: See Fig. 3.1. Note: the same as Fig. 3.1)

Commodity prices varied widely from region to region as so did nominal wages and exchange rates between the domestic copper and imported silver currencies. Take the widely cited data published in Peng Ziyi's *Zhongguo Jindai Shougongye Shi Ziliao 1840–1949* (*Materials for Early Modern Chinese Craft History, 1840–1949*) as an example, his collection contains 151 sporadic citations for wage rates over 86 years (from 1734 to 1820) in 16 trades/sectors across 20 provinces of the Qing Empire. There is no clustering in these data.[21] For example, Table 3.1 contains 55 recorded local nominal wages across 14 handicraft industries over 80 years. There are simply no region-weighted wage rates for the empire.[22]

Table 3.1 Urban nominal wages paid in coins (*Wen*) by employers in the private sector, 1740–1820

Sector/Year	*Wen* per day	*Wen* per month	*Wen* per year
Paper-making			
1783	30		
1807		900	
1815		1200	
Sugar-making			
1796	25		
1803		500	
Pottery			
1770		550	
1806	30		
1814		300	
Charcoal-making			
1740		650	
1770		650	
1800		400	
1812	100		
1815		550	
Coal-mining			
1754			7000
1768	70		
1791	115		
1805			7000
1806	50		
1807		900	
1809		1000	
1813		600	
1814	80		

(*continued*)

Table 3.1 (continued)

Sector/Year	*Wen* per day	*Wen* per month	*Wen* per year
1820		800	
1820 (2)		1500	
Blacksmith			
1748		400	5000
1761		5000	
1769		850	
1772		1800	
1797		2000	
1802		7000	
1809		15,000	
1812		12,000	
Carpentry			
1777		1300	
1777 (2)		10,000	
1805	50		
1806	32		
1807	40		
1810	180	12,000	
Building			
1737	80		
1810	40		
1811	120		
1812	200		
Food-processing			
1772		1000	
Felt-making			
1807		2000	
1810		9000	
1819	45		
Fire-crackers			
1751		300	
1791		600	
Copper ware			
1811	300		
Cotton-textiles			
1770		600	
Dyeing			
1769		800	
1775			3300
1805		12,000	
Total cases	18	33	4

Source: Peng Zeyi (1957, pp. 396–416)

Note: Our data are based on copper coins (*wen*), the currency people used daily. Locations are omitted as the author only cites provinces

Rural wage data display similar degrees of variance (see Table 3.2).[23] These figures were not derived from systematic surveys. They are almost certainly one-off observations without any indication of frequency; and their geographic or economic weighting in a province is totally unknown. There is no indication in the source whether any citation was for skilled or unskilled workers. Furthermore, wage payment in kind (such as food and housing which was commonly provided in the wage package) is not included. In other words, even the lowest nominal wage cannot be regarded as the real wage for unskilled workers because undeclared payments in kind were part of the payment. All these problems make the representativeness and liability of these figures highly questionable. These data cannot be calibrated into a time or cross-sectional series.

Tiny Share of Waged Workers in the Workforce

Moreover, due to the dominance of agriculture in the economy, wage-dependent workers, or proletarians, represented an insignificant minority in Qing China. As late as 1890, the modern industrial workforce numbered about 100,000 rising to 600,000 in 1914, 1 million in the 1920s, and 3 million in the 1930s.[24] Also, China maintained a small army of 10 million traditional handicraft workers.[25] If all the urban waged workers are combined, the maximum number is no more than 12 million. The Qing urbanisation rate was less than 10 per cent of China's total population.[26] Thus, the amount of waged workers in Qing cities counted for mere 3 per cent of all urban residents. In farming, the percentage of proletarians (*gunong*) remains unknown. During the 1910s and 1930s, at least 70 per cent of all rural households were freeholders.[27] The remaining 30 per cent were landlords and tenants, and the share for very smallholders (likely to be tenants) was probably around 10–20 per cent.[28] Few of these tenants could be defined as 'proletarians' because in the majority of cases tenants operated under share-cropping contracts with landowners and did not earn wages.[29] Thus, the proportion wage-dependent labour in the Chinese workforce was too small to be representative of the labour market or for labour productivity in the economy as a whole.

Table 3.2 Rural wage rates recorded for provinces, *Wen* per year, 1735–1835

	Somewhere in		Somewhere in		Somewhere in			
1735	Henan	3000	1796	Sichuan	6000	1812	S'dong	5000
1737	S'dong	7000		Anhui	2400		Henan	6400
1741	Henan	2000	1797	Sichuan	5000	1813	Jiangsu	5000
1745	Zhili	7000	1798	G'dong	4800		Zhili	10,000
1746	Henan	1700		Hubei	2400	1815	S'dong	11,000
	Zhili	12,000	1799	Anhui	4400	1816	Guangxi	2000
	S'dong	4500		Z'jiang	11,500	1817	Sichuan	3400
1749	G'dong	3400		Hubei	3000	1818	Sichuan	3200
1751	Hubei	2500	1802	Shaanxi	7000	1819	Henan	4000
1755	G'dong	3500		Sshanxi	4500	1820	G'dong	4000
	S'dong	2500		Gansu	2200	1821	Henan	5500
1756	S'dong	6000	1803	Henan	9000	1822	Jiangxi	8000
	Hubei	6000	1804	Gansu	3600	1823	Shaanxi	20,000
1760	S'dong	3000		Z'jiang	6000	1825	G'dong	8000
1763	Zhili	1300	1805	Sichuan	10,000	1826	Sshanxi	13,500
1769	Henan	3000		Yunan	3100	1827	Shaanxi	2500
1771	Sichuan	4800	1806	Sichuan	3600	1828	Sichuan	4000
1773	Henan	5500	1809	Shaanxi	6000	1830	Anhui	900
1774	Sichuan	4800		G'dong	4000	1831	Sichuan	6000
	Anhui	2500	1810	Gansu	2800	1834	Anhui	2700
1795	Henan	10,500	1811	Sichuan	5000	1835	Sichuan	2400
	Anhui	4800		Jiangsu	12,000		Yunnan	5000

Source: Huang Miantang (1992, pp. 71–8)
Note: G'dong Guangdong, S'dong Shandong, Z'jiang Zhejiang

Market Seasonality

China's labour market was marked by seasonality. Therefore, the rural labour force only became available for hire in sluggish seasons for 'top-up' income, and not a full living wage. Seasonality inevitably influenced both rural and urban wage rates. The winter wage rate was consistently lower than its summer counterpart presumably due to seasonal increases in labour supply. Even the Qing government recognised seasonality in its wage scales (see Table 3.3).

Diversified Wage Payments in Cash and in Kind

Qing wages were paid partly or entirely in kind. Recorded money wages were in fact only a part of the total payment. This explains why and how in government-run projects workers' wages were often static for long periods. They reflect neither market demand and supply nor the true cost of labour in real time.[30] For example, in the 1768 *Qinding Fujian Sheng Waihai Zhanchuan Zeli* 欽定福建省外海戰船則例 (*Imperially endorsed regulations and precedents related to the construction of war vessels in Fujian Province*) states that all workers were paid the same money wage at 0.05 silver *taels* per day as the official wage (*heding gongjia*, or 'officially approved wage'). This wage rate applied to hull-builders, carpenters, caulkers, blacksmiths, painters, rope-makers, sail-makers, rattan workers, wood carvers, and labourers alike.[31] Such a practice is clearly not congru-

Table 3.3 Seasonality in government wage rates for builders, silver *taels* per day

Skilled workers				Unskilled workers		
	Summer	Winter	W:S	Summer	Winter	W:S
1659	0.24	0.19	0.79	0.12	0.10	0.83
1665	0.24	0.14	0.58	0.08	0.07	0.88
1723	0.18	0.14	0.78	0.08	0.06	0.75
Average			0.72			0.82

Source: *Qinding Da Qing Huidian Shili* 欽定大清會典事例 (*Imperially Endorsed Collected Statutes of the Great Qing Dynasty, with Factual Precedents*), the 1899 edition. Reprint (Taipei: Zhongwen Shuju Press, 1963), Chap. 952, pp. 16640–41

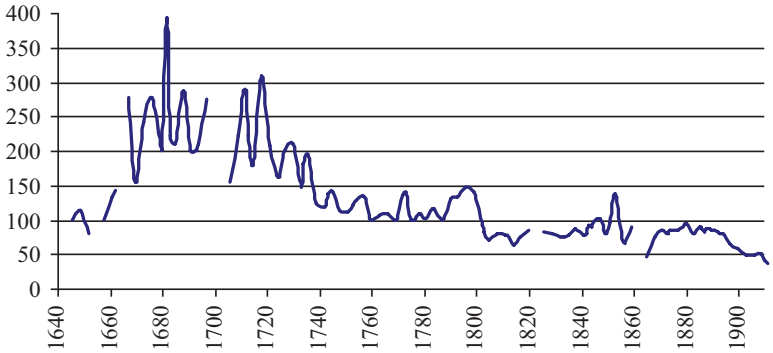

Fig. 3.3 Silver Purchasing Power Index (1646 = 100),* 1640–1910. (Source: (1) Before 1693, based on Ye Mengzhu (1981, vol. 7, pp. 153–4), Yao Tinglin (1982, pp. 43–156). (2) During 1693–1722, based on Department of Archives, Palace Museum (1976, pp. 1–293). (3) During 1723–1735, based on Ch'üan and Kraus (1975, pp. 145–8). (4) After 1736, based on Wang, *The Database of Grain Prices.* Note: * The index represents the amount of rice one silver *tael* was able to buy. Data are from Jiangsu Province of the Lower Yangtze)

ent with neo-classical labour market in which skills command a premium and market demand matters. Furthermore, a living wage should cover the living costs. Given that the purchasing power of the silver *tael* was in sharp decline during the Qing (see Fig. 3.3), a fixed 0.05 silver *taels* per day is incompatible with either of these conditions. In other words, workers must have been compensated by non-money wages that were not recorded.

Wage rates in the private sector changed all the time, from period to period and region to region (see Tables 3.1 and 3.2), and the price of food (the basic component of a living wage) was on the rise after 1670 (see Fig. 3.4 as well as Figs. 3.1 and 3.2).[32]

To pay workers a fixed money wage implies that either no one worked for the government or the Qing government remunerated its employees in food to guarantee them a living wage. Thus, the fixed money wage in the state sector is either untrustworthy or the cited fixed wage at 0.05 silver *taels* per day was too insignificant to affected the real living wage of workers. According to *Qinding Da Qing Huidian Shili* 欽定大清會典事例 (*Imperially Endorsed Collected Statutes of the Great Qing Dynasty, with Factual Precedents*, 1899 Edition), each worker employed in government

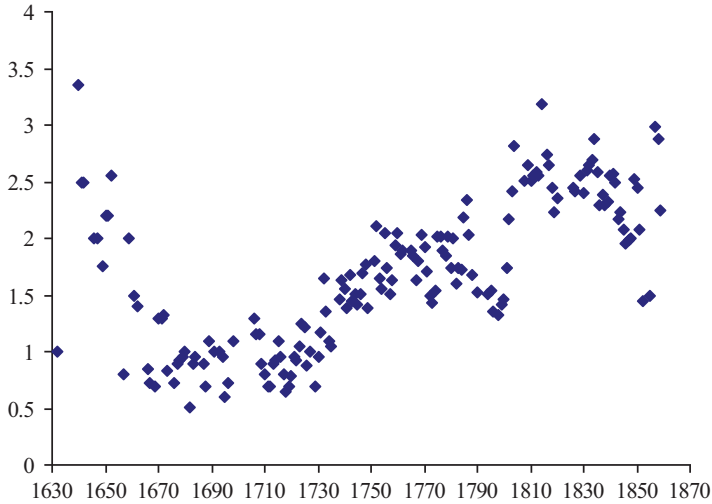

Fig. 3.4 Rice Prices at Harvest Times in the Yangtze Delta, 1630–1870. (Sources: Ye Mengzhu (1981), Yao Tinglin (1698), Ch'üan and Kraus (1975). Note: *Taels/shi* of the second grade rice, autumn prices)

projects 'was provided one *sheng* of husked stipend rice (about 1.5 *jin* or 750g) a day for each member of his family.' 500 g of husked rice sustains an adult for a day. This amount was able to sustain a worker's family and hence can be interpreted as a key component of a living wage. Less known is the fact that this stipend was paid separately by the Ministry of Revenue (*hubu*) while the money wage came from the Ministry of Works (*gongbu*).[33] Modern researchers can easily miss it. In addition, each worker was provided with one padded hat, one fur coat, a pair of padded cotton trousers and a pair of boots by the Central Depot (*zhizao ku*).[34] The state also provided workers with shelter as part of the wage. It is worth noting that wage and salary payments in kind were common for Qing officials and soldiers.[35]

Currently, the best available evidence comes from records of the wage payment structure for three large state-run textile workshops employing in all 7000 workers in the Lower Yangtze during the Qing Period (Table 3.4).[36]

Table 3.4 Payments to workers employed in state-run textile workshops

Worker's type	Payment in food (%)	Payment in cash (%)
Unskilled (1)	67	33
Unskilled (2)	75	25
Semi-skilled	67	33
Skilled (1)	33	67
Skilled (2)	43	57
Average	57	43

Source: Peng Zeyi, 'Qingdai Qianqi Jiangnan Zhizaode Yanjiu' (The Jiangnan Textile Bureau in the Early Qing Period), pp. 97, 107
Note: Shelter for workers is not included here

Table 3.5 Stipend payment and a family's livelihood

Workers' type	Payment in food (*sheng*)	Number of adults to support[a]
Skilled (1)	3.5 *sheng* or 2.63 kg/day	5.3
Skilled (2)	3 *sheng or* 2.25 kg/day	4.5
Semi-skilled	3 *sheng or* 2.25 kg/day	4.5
Unskilled (1)	2 *sheng* or 1.5 kg/day	3.0
Unskilled (2)	1.5 *sheng* or 1.13 kg/day	2.3

Source: The same as Table 3.4
[a]Calculation is based on 500 g of grain per day to sustain an adult male

Food as a part of the stipend was sufficient to sustain dependents of waged workers (Table 3.5):

Assuming waged workers to be relatively poor and thus their Engel's coefficient high, wage payment in kind had become more important than the money wages, especially during the period when food prices increased after 1670. Payment in food transcended market pricing in order to guarantee workers' living standards. Other payments in kind such as shelter were often not even recorded in official records. Evidence derived for money wage rates paid by the state cannot be read as determined by demand and supply for labour in China and at inference applies to published data for the private sector. For example, it was common for rural employers to provide rural workers with full board as the main part of their wages. The following examples are recorded in Peng Zeyi's *Zhongguo Jindai Shougongyeshi Ziliao* (*Historical Materials of Handicraft Industry in Early Modern China*):

1. 'Year 1738, Fujian: Zhang Taiyi was hired to make tofu in Yuanlu Shop. The deal was that he was provided with food but no cash pay.' (p. 409)
2. 'Year 1777, Jianning Prefecture, Fujian: The official in charge was commissioned to have the ceremonial equipment of the government school repaired. He drafted five tin-smiths and fed them two meals a day and paid them 50 *wen* a day.' (p. 410)
3. 'Year 1790, Fuliang County, Jiangxi: He Zhouyu hired Wang Suiyuan on a short-term contract to make tofu. He paid Wang 750 *wen* a month. The employer and employee dined together on the same table in the employer's home.' (p. 409)
4. 'Year 1802, Pengshui County, Sichuan: Zhou Dacai hired Xu Qi for coal-mining, the cash wage was 1,000 *wen* per month. Xu and Zhou dined together on the same table in their employer's home.' (p. 400)
5. 'Year 1809, Tianhe County, Guangxi: Huang Shizhen owned Duantong Iron Works, and hired Zhang Shiting with money wage of 24 *taels* a year. Zhang and Huang dined together on the same table in their employer's home.' (p. 403)
6. 'Year 1812, Suzhou, Gansu: Feng Lianggui hired Li Panwazi for coal-mining. They agreed a wage of 400 *wen* per month. Li and Feng dined together on the same table in their employer's home.' (p. 401)
7. 'Year 1818, Shanglin County, Guangxi: Luo Dengke and Tan Shiyuan were hired by Huaqui Iron Works. The wage was 1,200 *wen* per month. They dined with the employer together on the same table in their employer's home.' (p. 403)
8. 'Year 1819, Huoqiu County, Anhui: Xu Hongshou hired Wu Chunlin in his blacksmith workshop. The wage was clearly stated as 7,000 *wen* a year; they dined together on the same table in their employer's home.' (p. 403)

Chinese Currencies

Exchange rates between silver *tael* and copper coins (*wen*) varied from time to time and from location to location, showing little integration (Table 3.6).[37]

Table 3.6 Exchange rates between copper *wen* and silver *tael*, 1670–1847

Year	Location	*Wen* per *tael*	Year	Location	*Wen* per *tael*
1670	Beijing	1250	1795	Sshanxi	1000
1693	Beijing	800	1799	Jiangsu	1450
1741	Beijing	830	1802	Shandong	1650
1742	Jiangsu	700	1819	Fijian	1300
1744	Guangdong	815	1822	Beijing	2000
1746	Sshanxi	720	1824	Fujian	1240
1748	Shandong	750	1826	Jiangsu	1150
1749	Zhili	800	1828	Jiangsu	1280
1751	Shaanxi	780	1829	Zhili	1300
1759	Gansu	885	1830	Fujian	1350
1766	Yunnan	1100	1831	Sshanxi	1300
1770	Yunnan	1150	1832	Guangdong	1250
1775	Zhili	955	1836	Anhui	1370
1778	Shaanxi	890	1837	Sichuan	1600
1779	Zhili	880	1838	Hunan	1420
1780	Zhili	910	1842	Zhejiang	1650
1791	Sichuan	1550	1846	Jiangsu	1500
1794	Yunnan	2450	1847	Hunan	2000

Source: Yu Yaohua (2000, pp. 857–62)

Final Conclusions

Most of the evidence recently published for a stimulating debate on the Great Divergence comparing levels and trends in real wages between Qing China and Western Europe can be easily exposed as not fit for purpose. Variance in prices across the regions of China has undermined or severely disqualified on assumption that the imperial market for food and other consumer goods that made up the basket of commodities purchased for wage-dependent labourers and their families could be plausibly represented as integrated.[38] For nominal wages, the evidence for an integrated labour market is simply not there. The assumption that the statistics in print could serve as proxies or plausible conjectures for average standards of living, labour productivities or levels of industrialisation could only satisfy those who believe that any number is better than no number.

Notes

1. Pomeranz, *The Great Divergence*; Brenner and Isett, 'England's Divergence from China's Yangzi Delta', pp. 609–62; Allen et al., 'Living Standards in the Past'; Booth, A., 'Living Standards in the Past: New Perspectives', pp. 289–93; Broadberry and Gupta, 'The Early Modern Great Divergence', pp. 2–31; Lucassen, *Wages and Currency,* Pomeranz, 'Ten Years After: Responses and Reconsiderations', pp. 20–5; Vries, *Escaping Poverty, The Origins of Modern Economic Growth*.
2. Ozmucur and Pamuk, 'Real Wages and Standards of Living in the Ottoman Empire', pp. 293–321; Allen, 'Agricultural Productivity and Rural Incomes and the Yangtze Delta', c. 1620 – c.1820'; pp. 525–50; Allen, Bassino, Ma, Moll-Murata and Van Zanden, 'Wages, Prices and Living Standards in China 1738–1925′ in comparison with Europe, Japan and India', pp. 8–38.
3. Scholliers, 'Real Wages in 19th and 20th Century Europe', Parthasarathi, 'Wages and Competitiveness in the Eighteenth Century: Britain and South India', pp. 79–109.
4. Scholliers and Schwartz (eds.), *Experiencing Wages.*
5. Munro, 'Builders' Wages in southern England and the Low Countries 1346–1500'; Van Zanden, 'Wages and Standards of Living in Europe, 1500–1800', pp. 175–98; Allen, 'The Great Divergence in European Wages and Prices from the Middle Ages to the First World War', pp. 411–47; Bassino and Ma, 'Japanese Unskilled Wages' in International Perspective 1741–1913', *pp.* 229–48; Sivramkrishna, 'Ascertaining Living Standard in Erstwhile Mysore, Southern India', pp. 695–733; Baten, 'Evaluation of Living Standards and Human Capital in China in the 18–20th century', pp. 347–59; Allen, 'The High Wage Economy and the Industrial Revolution: A Restatement', pp. 1–22.
6. Numerous, for example, Wittfogel, *Oriental Despotism;* Toynbee, *Half the World;* Pryor, 'The Asian Mode of Production as an Economic System', pp. 420–42; Wong, *China Transformed*.
7. See, for example, Wong, *China Transformed.*
8. Deng, *China's Political Economy in Modern Times*, p. 25.
9. Ibid. pp. 26–8. The widely cited *lijia* system, or 'Neighbourhood Watch', was never directly run by the state in China's long history.
10. Ibid. p. 16.
11. See, for example, Chang, *The Income of the Chinese Gentry*, p. 16; Liu, Wang, and Jin, *Zhongguo Jindai Jingji Fazhanshi*, p. 66.

12. Sato, 'The Archetype of History in the Confucian Ecumene', p. 226.
13. See, for example, Skinner, 'Sichuan's Population in the Nineteenth Century', pp. 1–79.
14. See our recent articles: O'Brien, Patrick and Kent Deng, (1) 'Can Debate on the Great Divergence Be Located within the Kuznetsian Paradigm for an Empirical Form of Global Economic History?' pp. 63–78; (2) 'Nutritional Standards of Living in England and the Yangtze Delta (Jiangnan), c.1644 – c.1840', pp. 233–67; (3) 'China's GDP Per Capita from the Han Dynasty to Communist Times', pp. 79–123; (4) 'Establishing Statistical Foundations of a Chronology for the Great Divergence: A Survey and Critique of the Primary Sources for the Construction of Relative Wage Levels for Ming-Qing China', pp. 1057–82; and (5) 'Why Maddison Was Wrong', pp. 21–41.
15. Chi, *Key Economic Areas in Chinese History*; Buck, *Land Utilization in China;* and *Land Utilization in China: Statistics*; Chen, *Qingdai Quyu Shehui Jingji Yanjiu* (*Regional Socio-Economic Conditions during the Qing Period*); Ji Chaoding, *Zhongguo Lishishangde Jiben Jingjiqu Yu Shuili Shiyede Fazhan* (*Basic Economic Regions and the Development of Irrigation Systems in Chinese History*).
16. For the lower Yangtze rice market, see Wang, 'Secular Trends of Rice Prices in the Yangzi Delta, 1638–1935', pp. 35–68; Shiue and Keller, 'Market in China and Europe on the Eve of the Industrialisation', pp. 1190–1216.
17. Buck, *Land Utilization in China; Land Utilization in China: Statistics*.
18. Sng, 'Size and Dynastic Decline: The Principal-agent Problem in Late Imperial China, 1700–1850', pp. 107–27.
19. Ch'üan, and Kraus, *Mid-Ch'ing Rice Market and Trade: An Essay on Price History*; Shiue and Keller, 'Market in China and Europe on the Eve of the Industrialisation', pp. 1190–1216; Brandt, Loren, Ma, and Rawsaki, 'From Divergence to Convergence', pp. 45–123.
20. See Bernhofen, Eberhardt, Li, 'Assessing Market (Dis)Integration in Early Modern China and Europe'; and 'Market Disintegration as a Precursor to the Great Divergence'. These papers challenge the Shiue-Keller Hypothesis.
21. See also, Ma, Zhang Moll-Murata, 'Wages on the Free Market: Various Industries, China-wide, between 1735 and 1820', www.iisg.nl/hpw/data.phd#China.
22. Deng and O'Brien, 'Establishing Statistical Foundations of a Chronology for the Great Divergence', pp. 1057–82.

23. For English rural wages, see Clark, 'The Long March of History', pp. 97–136.
24. Deng, '*China's Political Economy in Modern Times*', pp. 114–15.
25. Ibid. p. 115.
26. Rozman, *Urban Networks in Ch'ing China and Tokugawa Japan*; Cao, *Zhongguo Renkou Shi* (*A Demographic History of China*), Vol. 5, pp. 828–9.
27. Tawney, *Life and Labour in China*, p. 34; Buck, *Land Utilization in China*, pp. 194–7; Chao, *Man and Land in Chinese History: An Economic Analysis*, Chap. 8.
28. Deng, *The Premodern Chinese Economy,* pp. 26–7.
29. Ibid. pp. 77–8.
30. For example see 'Wages for Armament, Military Equipment, and Shipbuilding Workers, 1769 and 1816', *Qinding Gongbu Junqi Zeli* 欽定工部軍器則例 (*Imperially Endorsed Regulations and Precedents of Weapons and Military Equipment by the Ministry of Public Works*), (1816), and *Qinding Fujian Sheng Waihai Zhanchuan Zeli* 欽定福建省外海戰船則例 (*Imperially Endorsed Regulations and Precedents of War Vessels of Fujian Province*), after Qianlong 33 (1768). Reprint in *Taiwan Wenxian Congkan* 臺灣文獻叢刊 (Historical Documents in Taiwan), vol. 125. See also, Chaoyong, Jing, Kiefner, Moll-Murata, Zhang and Ma, 'Regulated Wages Paid by the State in Public Construction' Data from *Wuliao Jiazhi Zeli* (*Regulations and Precedents on the Prices of Materials*) for 15 Chinese Provinces from 1769 to 1795', www.iisg.nl/hpw/data.phd#China.
31. Reprint as *Taiwan Wenxian Congkan* 臺灣文獻叢刊 (*Historical Documents in Taiwan*), vol. 125 (Taipei: Taiwan Yinhang Press, 1961), Foreword, p. 27, Chap. 1, p. 60, Chap. 2, p. 92, Chap. 3, p. 122, Chap. 4, p. 151, Chap. 6, p. 212, Chap. 7, p. 243, Chap. 8, p. 273, Chap. 9, p. 393, Chap. 10, p. 333, Chap. 11, p. 363.
32. For a moving trend of commodity prices recorded by foreign traders during the Qing, see Van Dyke, *The Canton Trade: Life and Enterprise on the China Coast, 1700–1845*, Appendix.
33. See Reprint, Taipei: Zhongwen Shuju Press, 1963, Chap. 952, pp. 16640–41.
34. Ibid.
35. In 1654, an ordinary Banner soldier received allowance of 50 *taels* of silver (4.2 *taels* per month) plus 5 *shi* stipend rice (362.5 kg) each year, which allowed for a quite decent living; see Zhao, Tian, Cai, He,

Shouquan, Wei and Zhang, *Zhongguo Junshi Shi* (*A Military History of China*) (Beijing: PLA Press, 1987), vol. 3, p. 459.

36. Peng, 'Qingdai Qianqi Jiangnan Zhizaode Yanjiu' (Government Textile Workshops in the Early Qing Period), pp. 97, 107.
37. See, for example, Chen, 'Flexible Bimetallic Exchange Rates in China, 1650–1850', *Journal of Money Credit and Banking*, 7 (1975), pp. 359–76; Vogel, 'Chinese Central Monetary Policy 1644–1800', *Late Imperial China* 8 (1987), pp. 9–43.
38. For market disintegration in China, see Bernhofen, Eberhardt, Li, and Morgan, 'Assessing Market (Dis)Integration in Early Modern China and Europe'; and, 'Market Disintegration as a Pre-cursor to the Great Divergence'. For the 'real wage approach', see Allen, Bassino, Ma, Moll-Murata and Van Zanden, 'Wages, Prices and Living Standards in China 1738–1925 in comparison with Europe, Japan and India', pp. 8–38; Broadberry and Gupta, 'The Early Modern Great Divergence: Wages, Prices and Economic Development in Europe and Asia, 1500–1800', pp. 2–31; Broadberry, 'Accounting for the Great Divergence'.

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4

What Is Wrong with the History of Wages: Or the Divide in Economic History—A Reappraisal Suggested by Eighteenth-Century Milan

Luca Mocarelli

The history of wages and prices constitutes an important area of research in the writing of economic history in the twentieth century, and also because, as Earl J. Hamilton wrote in 1944, 'the prices of commodities and wages of labour recorded in contemporaneous account books are the oldest continuous objective data in existence'.[1] However, it was not a desire to understand better the logic of price formation that promoted the vast amount of research which began with the founding of the 'International Scientific Committee on Price History' in 1930, and continued over the following decades. The result was the creation and proliferation of a series of historic works covering long or extremely long periods, which were destined to be of only comparative importance within a theoretical framework oriented towards the perfect market, which is and will continue to be an ideal and idealised concept.[2]

In recent years, the debate about standards of living, which has become an international issue, has summed up the results of a history of prices and

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wages created in this way, and numerous attempts have been made to develop large-scale comparisons in time and space.[3] In many cases, however, such efforts have led only to the construction of giants, which, although imposing, have feet of clay. I shall seek to demonstrate this by referring to the subject I know best, eighteenth-century Milan, a case study worthy of note since comparative studies on living standards in Europe which include Italy, have almost always been built with data on Milan.[4]

Regarding prices, scholars have made use of the series of prices of cereals compiled by Aldo De Maddalena by calculating the average prices of wheat and maize at the Broletto—the city grain market.[5] Obviously these values are not exact, because they do not take into account the many different types of grain and the considerable daily fluctuation of prices in this kind of market, as documented by Guerzoni, writing about sixteenth-century Ferrara.[6] However, although we can accept these prices as a reasonable proxy, they cannot be used, as hitherto, to build up an accurate picture of the standard of living, which is determined not by the wholesale price of cereals but by the cost of bread.

Unfortunately, it is now impossible to convert the price of grain into the cost of bread almost anywhere in early modern Europe, because of the systems of keeping the price of food under control.[7] Particularly when market values rose, because that was precisely when the authorities intervened to fix a ceiling price on bread. In the years 1773/1774, for example, bad harvests caused the price of wheat and maize to rise to almost double that of 1772.[8] In May 1775, the city of Milan took steps to keep things under control until the next harvest, hoping for a better yield. Thus, it subsidised the flour merchants so that they could continue to sell wheat flour at six lire and four soldi the bushel, even though the price had risen to six lire and 14 soldi, and at the same time it allowed no less than 35,000 lire to the bakers so that they could keep the weight of a penny loaf of bread at three and a half ounces when the market value was three ounces.[9]

Even more relevant was the intervention of the city of Milan in 1800, when the prices of cereals reached their highest during the period under consideration by De Maddalena (1700–1860), due to the combination of bad weather and bad harvests, the requirements of the French army, and a general climate of opportunism.[10] Yet again the civic leaders took action to keep the price of bread well below that dictated by the price of wheat, undertaking to pay the difference to the bakers. And in this case,

given the huge increase in the wholesale price, the total expenditure was a colossal 100,000 lire, which weighed on the city's balance sheet for over ten years.[11]

Nor was Milan exceptional. Turin, to give another example, had to face the poor harvests of 1773/1774. In 1773 the city bought up 44,537 sacks of cereals, which it then sold on to the public at prices well below market quotations, making a loss of 220,000 lire. It then bought 40,000 more sacks and distributed them to the bakers at a capped price of 4.3 lire a mina, making a further loss of 250,000 lire, to which was added the 39,000 lire refunded to bakers for the cap imposed on the price of saleable bread of the poorest quality.[12]

It is evident, then, that we cannot reconstruct standards of living by using as a starting point the wholesale prices of cereals, as has usually been done up to now. For doing so inevitably leads to the assumption that purchasing power decreased to a far greater degree than was in fact the case, particularly in times of greatest difficulty which were not so unusual in early modern period.[13] This is amply confirmed by the findings of a reliable scholar of anthropometry, often cited in support of the theory that there was a serious deterioration of living conditions in eighteenth-century Milan. Summarising the results of his important research A'Hearn writes that 'the moderate magnitude of the decrease in heights, suggest that the deterioration of living standards cannot have been as severe as those estimates (prices and wages series) imply'. In reality 'the evidence presented here supports only a more limited decline in living standards in the late eighteenth and early nineteenth century'.[14]

The overestimation of the decline in living standards has come about because not only was the first foot of the giant—prices—built with materials not entirely suited to the purpose, but also because the bricks chosen for the second foot—wages—were of no better quality, particularly in the case of Milan. For De Maddalena reconstructed the wages of master builders and their assistants working on the building of the cathedral using a source which cannot give us the actual salaries they earned.[15]

The figures on the payslips he consulted refer in fact to the amounts paid to the foremen for the days their men worked, which, in most cases are not the same as the wages the labourers actually received.[16] Their wages could be lower, as happened when the foremen only provided the labour and attempted to increase their own earnings by juggling with the

difference between what they received from the contractor of the work and what was due to their builders. But they could also be higher than the amount agreed between the foremen and the contractor.

Indeed, documents in the archives of the Cathedral Workshop recount numerous instances of foremen being obliged to pay their subordinates higher wages than the fixed rates, on account of the conditions in which they worked. In 1749, for example, Domenico Berra and Giovanni Battista Bonola received compensation because in order to persuade their workers to build the scaffolding for the dome of the cathedral, they had had to agree to 'a greater than usual daily recompense, and also provide them with wine to encourage them at their work'. An unavoidable concession since the men refused to undertake the work at the same 'price paid for other work, this being much more difficult and dangerous'.[17]

The fact that it is impossible to calculate exactly how much the rates laid down by the Cathedral Workshop differed from the amount the labourers actually received could lead us to accept De Maddalena's figures as they stand, if only as an indication of the situation. However, his series was more than a little puzzling, since the wages of the master builders seem to be remarkably static, remaining fixed at just below 33 soldi a day from 1709 to 1778, then falling to around 29 soldi, and staying at that figure until 1800.[18] So not only were there no noticeable variations, but wages seem to have dropped precisely at the time when building activity was at its height in Milan.

Such a trend would seem to support the argument that market logics had little if any influence on the formulation of wages in pre-industrial times. As Jan de Vries made very clear, 'Many historians deny that economic forces dominated the determination of what labourers were paid for their time, skill and effort and are sceptical that economic objectives suffice to account for the behaviour of labourers. To some, culture and custom were far more influential than the market; to others, the market power of wage earners was simply too small, rendering the market one sided and tending to keep wages always at or near subsistence'.[19] So it would have been collective bodies like the guilds, or those commissioning the building, or the foremen—people in an unassailable position of strength—who determined and imposed the amount to be paid. Kaunitz himself shares this view, observing that 'the entrepreneurs of all the different types of work which was paid by the day' were extremely strict about 'keeping to the usual price' when it came to paying their subordinates.[20]

However, a wider application of the same archive used by De Maddalena, together with other contemporary sources, is enough to show that the reality is quite different, whilst also confirming that those who insist upon the marked segmentation of the labour market in the building sector, on the influential role of the foremen and the consequent fluctuations in wages, are in a strong position.[21] Research carried out by this writer has allowed me to construct a sample sheet made up of 284 payslips handed in by foremen, referring in all to more than 256,000 days' work in the 40 years from 1757 to 1796, amounting to a total figure of over 300,000 lire. First of all, my research shows that there was a wide spectrum of professional rankings, far more than the classical triad of master-labourer-boy deriving from the guild, although the latter does account for almost 60% of the daily remuneration. The work force was further articulated by the contributions of the men who shovelled up the rubble, manual labourers and peasants, just as, at a higher level, we find overseers and their assistants alongside the foremen.[22]

This wide spectrum of professional grades can make the difference in the long-run studies if this spectrum changes radically over time. Precisely here lies one of the major problems in connection with wage history aiming at the reconstruction of megatrends, as the relative importance of the constituents can change over time, producing a change in average wages due to a composition effect rather than to changes in the trend of wages for each professional grade. Unfortunately, this is generally not considered by those who use wages as a basis for reconstruction of standards of living and it is a major shortcoming, although not present in my study as it deals with only a few decades.

Certainly, this variety of jobs meant a considerable variability in wages, which not only rewarded the more labour-intensive tasks, but went well beyond the predictable differences due to seniority and type of work, since it also applied to people with the same qualifications. The noticeable divergence in wages, particularly in the case of master builders, labourers and peasants, does not, however, prevent us from concentrating them around certain figures, given in Tables 4.1 and 4.2: 35 soldi for masters, 25 for shovellers, 18 for skilled workmen, labourers, and boys. It is worth pointing out that these earnings are considerably higher than those De Maddalena reconstructed by referring solely to the documentation of the Cathedral Workshop. All of which, together with the price of

Table 4.1 Wages for workers in the building sector 1757–1796 (soldi per day worked)

Profession	Remuneration in soldi	N. days	Total remuneration
Master builder	26	232	6032
	27	1080	29,160
	28	1134	31,752
	30	11,169	335,070
	32	216	6912
	33	1872	61,776
	33.5	384	12,826
	35	89,094	3,118,290
	40	447	17,880
Skilled worker	16	6099	97,584
	17.6	144	2520
	18	57,534	1,035,612
	20	3243	64,860
	22	78	1716
	25	561	14,025
Labourers	15	420	6300
	16	1629	26,064
	17	2325	39,525
	17.6	1989	34,807
	18	49,566	892,188
	19	306	5814
	20	120	2400
Diggers or Shovellers	25	14,814	370,350
Boys	15	927	13,905
	16	30	480
	17	9	153
	18	6099	109,782
	22	2295	50,490
Peasants	30	48	1440
	35	450	15,750
	40	78	3120
	42	1743	73,206
	80	291	23,280
Total		256,426	6,505,069

Sources: SAMI, Militare, p.a., c. 201, 318, 360, 363, 364; ivi, Bazzero, c. 6; ivi, Fondi camerali, p.a., c. 211, 212; ivi, Fondo di religione, c. 2215; ivi, Finanza, p.a., c. 844, 988, 1097; ivi, Uffici civici, p.a., c. 153, 156; ivi, Commercio, p.a., c. 190; ivi, Acque, p.a., c. 397, 966, 967, 967 bis, 968; CHAMI, Località milanesi, c. 7, 24, 25, 26, 103, 124, 128, 133, 173, 178, 192, 209, 210, 268, 269, 271, 272, 273, 274, 275, 276, 282, 283, 284, 286, 287, 289, 297, 431, 441; AVWCMI, c. 190, c. 434, Mandati 1750–1795

Table 4.2 Wages paid to those in charge of building sites 1757–1796 (soldi per day worked)

Profession	Remuneration in soldi	N. days	Total remuneration
Foreman	35	78	2730
	40	207	8280
	50	402	20,100
	70	18	1260
	120	81	9720
Overseer and assistant	40	36	1440
	45	492	22,140
	60	1020	61,200
	70	774	54,180
Total		3108	181,050

Sources: See Table 4.1

bread, which was lower than that dictated by the wholesale cost of grain, can only lead us to endorse the conclusions reached by A'Hearne.

The chronological tendency is also different from that registered by De Maddalena, because, in the case of the master builder, there is no significant drop in earnings, with the sole exception of the first three years of the 1790s. However, this is followed by a gradual rise which, as Table 4.3 shows, in 1796 takes him up to a possible maximum of 40 soldi per day.

It is evident then that presenting a monotonous series of figures, all more or less the same—as has often been done when referring to wages in the building industry—makes the labour market appear to be artificially flat, when in fact it was extremely flexible. Indeed, the considerable variation in earnings, which De Maddalena chose to ignore, introducing numerous restrictive elements in the wages under consideration,[23] is not an occasional occurrence but a basic fact depending on a number of variables.

In the first place, it is easy to see that it was not only in the Cathedral Workshop that wages increased in proportion to the difficulty and danger of working conditions. A perusal of the accounts referring to work carried out in the public sector will suffice to show that urgent repairs, undertaken at night and in conditions of discomfort and danger, commanded a considerably higher remuneration. In 1790, for example, during repairs to the irrigation ditch of the tobacco factory, the foreman

Table 4.3 Wages of workers in the building sector 1757–1796 (soldi per day worked)

Year	Overseer	Foreman	Master	Skilled work	Labourer	Boy	Peasant
1757				25	15		
1758			35	18			
1759			35	18		18	
1760			35	18	18		
1761			32–35	17.6–18		16–18	
1762		50	30–35	16–18			
1763			30–35	16–18			
1764			35	17.6	16–18	16–18	25
1765			35	17.6	18	16	
1766			35	17.6–25	18		25
1767	45	35		16	18	15	30
1768			33.5–35	17.6	18	17, 22	
1769			35	17.6			
1770	70		30–35	17.6	16–20	16	35
1771			35	18	20		35
1772		40	26–37	17.6–18		15–22	
1773			35	17.6			
1774			35	18			
1775	40		35	17.6	20	15, 18	35
1776	60						40
1777	60		32–35	18		18	
1778			26–35		16–20		
1779			28–35	22	16–19	18	
1780	45		32–35	16–20	16–18		40–42
1781			32	18		15	
1782	45		30–35	18–20		15–18	

(*continued*)

Table 4.3 (continued)

Year	Overseer	Foreman	Master	Skilled work	Labourer	Boy	Peasant
1783			30–35		16–18		
1784			28–35	18	15–20		
1785			35	18		16–18	
1786			35				25
1787		70	35	17.6	17.6–18		25
1788	60		35	18			
1789		70	35	18	18	18	25
1790	60	40–70	27–35	18	17–18		25–42
1791			30		16		
1792			26–30	18	15–20		
1793			28–32	16	16	15–17	
1794			35		20		
1795			27–35		15–18		
1796	40–45	120	26–40	18	15–20		35–80

Sources: 1757, SAMI, Militare, p.a., c. 360; 1758 ivi, Acque, p.a., c. 967 bis; 1759 CHAMI, Località milanesi, c. 274; 1760 AVWCMI, c. 190; 1761 CHAMI, Località milanesi, c. 272, 284; 1762 AVWCMI, Mandati 1762; 1763 CHAMI, Località milanesi, c. 25; 1764 CHAMI, Località milanesi, cc. 272, 274, 283, 286; 1765 SAMI, Acque, p.a., c. 966; 1766 CHAMI, Località milanesi, cc. 24, 272; 1767 ivi, c. 7 and AVWCMI, c. 434; 1768 CHAMI, Località milanesi cc. 24, 272 and SAMI, Militare, p.a., c. 318; 1769 Asmi, Bazzero, c. 6; 1770 CHAMI, Località milanesi, cc. 269, 272, 273, 287; 1771 ivi, c. 271, 286; 1772, SAMI, Fondi camerali, p.a., c. 212 and Acque, p.a., c. 397; 1773 CHAMI, Località milanesi, cc. 26, 173; 1774 SAMI, Militare, p.a., c. 363; 1775 ivi, Fondo di religione, c. 2215 and CHAMI, Località milanesi, cc. 7, 287; 1776, ivi, c. 133; 1777 SAMI, Militare, p.a., c. 364 and CHAMI, Località milanesi, c. 273, 275; 1778, ivi, cc. 255, 297; 1779 ivi, cc. 210, 271, 289; 1780 ivi, c. 7, 192, 276; 1781 SAMI, Acque, p.a., c. 968; 1782 CHAMI, Località milanesi, cc. 282, 431; 1783 ivi cc. 124, 268; 1784 SAMI, Acque, p.a., c. 967; 1785 ivi, Finanza, p.a., c. 988; 1786 ivi, Uffici civici, c. 153; 1787, ivi, Uffici civici, p.a., c. 156 and CHAMI, Località milanesi, cc. 103, 178, 273; 1788 SAMI, Finanza, p.a., c. 1097; 1789 ivi, c. 988 and CHAMI, Località milanesi, cc. 209, 275; 1790 ivi, c. 273 and SAMI, Finanza, p.a., c. 844, ivi, Acque, p.a., c. 967, ivi, Commercio, p.a., c. 190; 1791 CHAMI, Località milanesi, c. 441; 1792 ivi, c. 431; 1793 ivi, c. 192 and SAMI, Militare, p.a., 201; 1794 CHAMI, Località milanesi, c. 441; 1795 SAMI, Fondi camerali, p.a., c. 211; 1796 CHAMI, Località milanesi, cc. 128, 271

Giovanni Ambrogio Crippa demanded 50 soldi a day for his men instead of the usual 25, since they had 'worked day and night, standing in water'.[24]

It is no surprise that wages could vary according to the time of year, since obviously the season affected the number of hours available, generally nine-ten from September to April and 13 in the remaining months.[25] In the cases of Rome and Florence, or England, however, a seasonal variation in wages was not standard practice.[26] In Milan itself the practice varied somewhat during the Early Modern Age, becoming the norm only in the eighteenth century.[27] The application of 'seasonal' salaries, which in Milan spread progressively to include non-outdoor work, as in the tobacco plant,[28] did not depend only on the lower number of hours worked in winter than summer, but also on the clear understanding that, when establishing rates, competition from other possible employment had to be considered. This was especially the case of the many building jobs involving hard labour, because if the daily rates were not in line with those guaranteed in alternative work, the men would abandon the building sites. It was precisely for this reason that the Cathedral Workshop introduced differentiated wages for the stone masons at the beginning of the eighteenth century, paying them 25 soldi in the winter, when there was little chance of other work, 35 soldi in March, April, September, and October, and 46 soldi from May to August, when agricultural wages were at their highest due to harvesting. Previously, when wages remained the same all year, the masons had been absent 'from the work in summer, but staying there rather in winter for the same pay of thirty-five soldi a day'.[29]

Another example of the variation in earnings, and one which is more difficult to specify, is found when workers receive very different wages, although having the same qualifications and working side by side at the same job. Such differences could be very sensitive[30] and, although it cannot be demonstrated, could reasonably be attributed to the differing ability of the workers, or to their individual strength and age, or even to their position in the pecking order of that particular job and their relationship with the foreman who hired them. It could also have been a question of supply and demand, in the sense that if the former were ample, it would be easier for the foreman to adjust wages in proportion to differing individual capacity, while in the opposite situation, the workers would have more bargaining power to obtain equal pay.

Finally, it was also the overall economic situation which accounted for the fluctuation in wages, as the events of the turbulent years spanning the end of the eighteenth and beginning of the nineteenth century clearly show. In 1796, the workmen permanently employed in the Cathedral Workshop asked for a rise in pay because the approximately 400 lire they earned each year was no longer sufficient to keep a family, due to the 'rising price of essential commodities'.[31] Shortly afterwards the Cathedral foremen Berra and Bonola requested an increase in the daily rate because for some time they had been paying their subordinates 'at a higher rate than that received by the above-mentioned foremen from this Factory', which confirms how misleading De Maddalena's wage series are. The pressures forcing employers to concede substantial increases in pay were, on one hand, the shrinking work force, 'the scarcity of day workers', and, on the other, the significant increase in the cost of living.[32]

The fixing of wages did not follow customary or self-crediting logics, but was heavily conditioned by the economic situation and general state of the labour market, as all those in the building sector, from the contractors to the public administrators, well knew. Nor must we think that it was the exceptional situation at the end of the eighteenth century which first made people aware of the close connection between the economic situation and the progression of wages. Already in the 1770s, when the construction of the canals of Pavia and Paderno was being discussed, the decision to build only the second was made because undertaking two such huge enterprises at the same time was running the risk of 'seeing the cost of materials rise, raising the wages of the day labourers and taking large numbers of peasants away from their work in the country'.[33]

From what we have seen so far it would seem unwise to evaluate living conditions by making use of De Maddalena's reconstructed series, and even more so if we take into consideration a further two aspects. The first is the practice of adding some form of payment in kind, almost always wine, to the wages in cash. The item 'wine' appears on most of the expense sheets handed in by the foremen, and seems to have been an extremely variable one since it goes rom 2% to 8% of the calculated wage, with some exceptional instances of over 10%.[34] So, in the most fortunate cases, this payment in kind could take the effective value of a master's remuneration from 35 up to 38/39 soldi. In order to have a realistic picture of

what workers earned and the conditions in which they lived, we must add to the amount of money that was their fixed wage, not only payments in kind, but also other possible extras such as the availability of cheap, or even free living accommodation, like that provided by the Cathedral Workshop.[35] As a consequence both the actual value of the salary and its considerable variability would increase to an amount which is vastly different from what in many cases is held to be that of wages in pre-industrial times, and assumed to be the starting point for a study of standards of living.

The second thing that is worthy of note is that even the monetary component of the salaries poses complex questions, because payment was made in low values. The differences between the official and unofficial exchange rates which were widespread in the 1760s allowed the foremen and contractors freedom to speculate, and such practices came to light with the monetary reform in 1778, in which the lira Milanese was revalued by 20%.[36] A good example of this is the claim for damages presented by the Fontanas, contractors for the maintenance of city roads, in which they complain that they had suffered as a result of the reform, 'having lost the advantage of being able to pay days at the unofficial exchange rate, the contract having been stipulated at 17,500 lire on the official rate, and that moreover, the impresario has not been able to reduce the value of the daily pay of the masters and the labourers since the publication of the monetary system'.[37]

The fact that they could not be reduced unilaterally confirms that there were strong market logics in the determining of wages in the building industry. Even Archduke Ferdinand had failed to do so when 'as soon as the official rate appeared, he had reduced the wages of the workers employed on the building sites in the city and in Monza in proportion to it, (the reference is to the restructuring of the ducal palace and the construction of the royal villa) but seeing that nobody turned up for work the following day, was obliged to give them all the original rate of pay'.[38]

Clearly, in a framework like this it is not safe to set down uniform guidelines for wages in the building sector, and therefore inappropriate to use them as a basis for coming to conclusions about actual earnings and buying power. All the more so since, even setting aside the criticisms levelled here, and the obvious problem of taking as representative

of all wages the figures applying to such a small section of the community, we would be hard put to evaluate the total amount of hours worked in a year, because in the case of Milan we are always dealing with payment for a day's work. This is extremely important since historical real wages are usually based on annual incomes, ignoring how many days of work workers were working each year. It was such a well-known problem that more than 50 years ago Phelps Brown and Hopkins had warned against using their day-wage series as a measure of living standards without knowing how many days a worker worked a year.[39] As Woodward has so clearly shown, 'because of our ignorance of work patterns it is impossible to estimate the annual income which could be derived from wage-earning'.[40]

Not impossible, but certainly very difficult. With regard to this, we can only make a rough estimate starting from the number of working days, which in Milan rose from 280 halfway through the seventeenth century to 296 in the mid-eighteenth century, due to a reduction in the non-Sunday holidays from 33 to about 20.[41] Obviously this figure cannot be used exactly as it is because we have to take into account the number of employed and the seasonal variations. Let us say that the employment rate was 80% in the six to eight months when there was the most work available, and 60% in the winter months, and there was a quota of 1500 resident workers and 3000 seasonal workers in Milan, the former present on the labour market for 12 months a year and the latter only for eight. The result would be about 180 days actually worked a year, slightly less than the 200 calculated by Sella and Goldthwaite, but in line with the number proposed in a Lombard document from the beginning of the eighteenth century repeating an estimate made by Vauban.[42] If we look at a micro scale it's possible to find higher estimates, like in the case of workers at Saint Peter's Church in Rome which were employed about 250 days a year. However, this continuous and intensive exploitation could depend on the exceptionality of the building site analysed by Mauro Rota and Jacob Weisdorf.[43]

In Milan the majority of men working in the building industry would not have been able to keep a family, even a small one, on 180 days' wages.[44] But for many of these workers, the end of their day's work on the building site did not mean they were unoccupied. On the contrary, a

basic fact of working life in the pre-industrial era, especially for less skilled workers, was the need to have more than one job. In the case of the building industry this meant one of two things. Either they were individuals whose work on the building sites constituted their main source of income, and they looked for alternative work when there was less building work available, like the two labourers who asked to be taken on by the town council as lamplighters during the winter months.[45] Or they were people like the peasants, for whom building work was a means of supplementing their earnings from agricultural work.

Furthermore, in order to deal with the question of purchasing power and standards of living properly, we need to use as a yardstick, not the income of one adult male, but the entire family—taking into consideration what the women and children could depend upon earning, something that was becoming ever more common in the eighteenth century.[46] Nor should we overlook the importance of the support which could occasionally be given by the numerous charitable associations in Milan in times of need.[47]

Note that this is not an attempt to underestimate the harsh living conditions of the day, but simply to bring the debate back onto a more realistic plane than that which emerges by referring to an estimated average wage which is too low and considered only in terms of cash remuneration. Also, because in the case of Milan in the second half of the eighteenth century this has meant tracing out a progression of wages which looks very much like a flat encephalogram, in the face of a trend in cereal prices going sky high, and showing a gap that could not be filled as it had been previously. But if the situation had really been like this, the people of Milan would have had two choices: to die of hunger or try to reverse the long established economic and social balance. As we know, neither of these things happened.

In the face of the above collations, the uniformity of remuneration for builders in the eighteenth century shown by De Maddalena's data seems to be an over simplification. Moreover, the tendency for wages to remain stable for most of the period under consideration, although they were considerably higher than De Maddalena's figures, cannot be attributed to the fact that the foremen were able to exercise unilateral control over the

labour market. For this did not mean that they could fix the rates of pay arbitrarily, since they had to consider the contractor, and above all the general conditions of the offer on the labour market. In other words, they could not take the wages any lower than the limit imposed by the men's willingness to accept the figure fixed by the employer, as was shown above in the example of the unsuccessful attempt to lower wages after the monetary reform of 1778.

So what then is the sense of building up a picture of living conditions in Italy based on figures such as those in De Maddalena's series of wages and prices, which show such limitations and are based on numerous assumptions that do not always hold? I do not know if the application of wage data to the reconstruction of macroeconomic variables, as often happens, is improper, however I do know for sure that the quality of data, a real removed *Feast of Stone* in many works, is crucial. And the use of averages, interpolations, or sophisticated regressions certainly will not make such wages and prices series more reliable.

Notes

1. Hamilton (1944), 'Use and Misuse of Price History', p. 47.
2. Guerzoni, (2007), 'The Social World of Price Formation', pp. 85–86.
3. An example of this point of view are the recent works by Broadberry and Gupta (2006), 'The early modern great divergence'; Allen et al. (2011), 'Wages, Prices and Living Standards in China', and Allen et al. (2012), 'The Colonial Origins of Divergence in the Americas'. But see also Angeles (2008), 'GDP per capita or real wages?'
4. Among others, see Söderberg (1987), 'Real Wage Trends in Urban Europe'; van Zanden (1999), 'Wages and the standard of living in Europe, 1500–1800'; Allen (2001) 'The Great Divergence in European Wages and Prices'; Hoffman et al. (2002), 'Real Inequality in Europe since 1500'; Malanima (2007), 'Wages, Productivity and Working Time in Italy'; Malanima (2013), 'When did England overtake Italy?' pp. 45–70.
5. De Maddalena (1974), *Prezzi e mercedi a Milano*, pp. 379–381.
6. Guerzoni (2007), 'The Social World'.

7. On this topic see Marin and Virlouvet (eds.) (2003) *Nourrir les cités de Méditerranée* and Marin and Virlouvet (eds.) (2016), *Entrepôts et trafics annonaires en Méditerranée;* Allen is aware of this problem and in order to solve it he created a 'bread equation' following this logic: 'During the early modem period, however, municipal authorities regulated the price of bread, usually, with a "parts plus labor" rule. The bread price was set equal to the cost of the grain necessary for its production plus a markup for the baker's other costs, his income, and municipal taxes. A regression of bread prices on grain prices, the mason's wage rate (a stand-in for the baker's income), and dummy variables for the cities capture this rule' (Allen, 'The Great Divergence', p. 418). It could be a reasonable solution but only in the cases, and they are really a minority, in which we have no data in the archives about bread prices.
8. Between July 1772 and June 1775 the price of wheat practically doubled, going from about 27 to about 48 lire, while that of maize increased only slightly less, from about 21 to about 37 lire. See Civil Historical Archives of Milan [hereafter CHAMI], Materie, c. 439.
9. See the meeting of the Tribunale di provvisione of 23 May, in State Archive of Milan [hereafetr SAMI], Uffici Civici, p.a., c. 137 and the meeting of the Congregazione del patrimonio on 24 May, as above, c. 151.
10. Mocarelli, L. (2012) 'Le crisi alimentari', pp. 99–100.
11. Pillepich (2001), *Milan capitale napoléonienne,* p. 217.
12. The papers containing the documents relating to 1772–1774 are in State Archive of Turin, Materie economiche di seconda addizione. Annona, c. 1, n. 12.
13. Exactly for this reason the belief that this kind of intervention is relevant only over the short term is weak. In fact long series of wholesale prices of cereals would remain solid enough to represent the trend in cost of living over the long run, simply missing short-term fluctuations, only if the latter were rare.
14. A'Hearn (2003), 'Anthropometric Evidence'. The quotations are from pages 376 and 375 respectively.
15. De Maddalena (1974), *Prezzi e mercedi*, pp. 44–48.
16. Such a bias is also evident in the case of London building sector, as has been shown by Stephenson (2018), 'Real Wages? Contractors, Workers and Pay'.
17. The decision to accede to the request of the two foremen was taken by the delegated representatives of the Workshop on 29 December 1749, in

Archives of the Venerated Workshop of the Cathedral of Milan [hereafter AVWCMI], c. 430, Deliberazioni dei deputati 1745–1749. On March 9 of the following year each would receive a one-off payment of 285 lire, since they had had to pay the workers more than the agreed daily rate to complete the scaffolding of the dome, work which had 'exposed them to great danger' (as above, Mandati 1750. Primo Quadrimestre).

18. De Maddalena (1974), *Prezzi e mercedi*, pp. 419–420.
19. De Vries (1994a), 'How did Pre-Industrial Labour Markets Function?' p. 39.
20. Quotation from De Maddalena, *Prezzi e mercedi*, p.157.
21. Vigo (1974), 'Real wages of the Working Class in Italy'; Woodward (1995), *Men at Work,* pp. 169–190; Vaquero Piñeiro (1996), 'Ricerche sui salari nell'edilizia romana', pp. 136–138; Trivellato (1999), 'Salaires et justice dans les corporatins vénitiennes', pp. 271–273 and Wilson and Mackley (1999), 'How much did the English Country House Cost', pp. 443–446.
22. Mocarelli (2008), *Costruire la città,* p. 211.
23. De Maddalena (1974), *Prezzi e mercedi*, pp. 44–46.
24. See the dossiers with the calculations Crippa made in 1791 (SAMI, Acque, p.a., c. 967).
25. The length of the working days was extrapolated from a note written on 14 August 1781 by Lieutenant Colonel Francesco Bonomo, regarding work carried out on the castle of Milan (CHAMI, Località milanesi, c. 128).
26. Vaquero Piñeiro, ('Ricerche sui salari', p. 140) observes that in sixteenth century Rome there were none of the seasonal pay differences present in the previous century, whereas Woodward (*Men at Work (1995)*, pp. 138–139) points out that in England it was vastly different from one region to another. The seasonal differences in wages is also discussed in Clark (2007), 'The long march of history', pp. 101–102.
27. Sella (1968), *Salari e lavoro*, p. 79.
28. In the tobacco factory men received 33 soldi a day from November to April and 38.10 soldi from May to October (see note from 1778 in SAMI, Finanza, p.a., c. 1097).
29. *Annali della Fabbrica del Duomo dalle origini sino al presente* (Milano: Pirotta e Maspero, 1885), vol. VI, p. 74.
30. The wages earned by the 84 masters employed by Catenacci to work on the castle of Milan ranged from the 26 soldi earned by the nine lowest

paid to the 40 soldi received by the two top earners. Catenacci's note dated 1796 is in CHAMI, Località milanesi, c. 128.

31. The workers' request was presented on 24 April 1796 (AVWCMI, c. 137 Facciata e corpo. Provvidenze generali).
32. Berra and Bonola's petition is dated 13 July 1799 (AVWCMI, c. 145, Facciata e corpo della chiesa. Occorenze particolari).
33. This was the valuation of the deliberative committee convened by Archduke Ferdinand on 13 February 1773 (SAMI, Acque, p.a., c. 1004).
34. Mocarelli (2008), *Costruire la città*, pp. 228–230.
35. Barbot (2008), *Le architetture della vita quotidiana*, pp. 147–149.
36. De Maddalena (1974), *Prezzi e mercedi*, pp. 41–43.
37. Their claim was discussed at the meeting of the Congregazione del patrimonio on 23 June 1780 (SAMI, Uffici civici, p.a., c. 152).
38. See the letter, dated 25 November 1778, from the Venetian resident in Milan, Cesare Vignola (State Archive of Venice, Senato dispacci Milano, c. 222).
39. Phelps Brown and Hopkins (1956), 'Seven Centuries of the Price of Consumables'. More recently both Hatcher (2011), 'Unreal Wages: Long-run Living Standards', and Humphries and Weisdorf (2017), 'Unreal Wages? A New Empirical Foundation' have stressed the fact that the estimates of annual labour incomes are subject to measurement error due to our ignorance about the days worked a year.
40. Woodward (1995), *Men at Work*, p. 134.
41. Marchetti (2003), 'Il conflitto tra Chiesa e Stato', pp. 34–37.
42. Sella (1968), *Salari e lavoro*, p. 20; Goldthwaite (1982), *The Building of Renaissance Florence*, p. 423; 'Riflessioni del Principato di Pavia [….] l'anno 1709' (SAMI, Censo, p.a., c. 312).
43. I thank Mauro Rota for allowing me to consult his really interesting paper *The Real Wages of Skilled and Unskilled Roman Building Workers, 1340–1810*.
44. Capra (1987), 'Ogni cosa prospera e prende incremento', p. 175 estimated the cost of maintaining a family of four as over 400 lire a year, since, in the period 1750–1769, 200 lire would have been spent on bread alone, and in the last 20 years of the century around 280 lire.
45. It is significant that their request, made in 1793 (CHAMI, Località milanesi, c. 284) was prompted by the need to generate income in the months when they were laid off as builders.
46. On this important issue are seminal de Vries (1993), 'Between Purchasing Power and the World of Goods', and de Vries (1994b), 'The Industrial

Revolution and the Industrious Revolution'. But see also, more recently, Burnette (2008), *Gender, Work and Wages in Industrial Revolution Britain;* Humphries (2011), *Childhood and Child Labour in the British Industrial Revolution*; Allen and Weisdorf (2011), 'Was There an Industrious Revolution before the Industrial Revolution?'; van Nederveen Meerkerk and Schmidt (2012), 'Reconsidering the First Male Breadwinner Economy'; Humphries and Weisdorf (2015), 'The Wages of Women in England'.

47. According to Capra (1993), 'Il principe Trivulzio e la fondazione del Pio Albergo' p. 70 there were about 6000 people, so 5–6% of the population of the city, benefiting from the assistance of religious institutions and foundations in Milan. It is obvious that the support of charitable institutions is relevant to standard of living and not to the cost of labour.

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5

In Search of the Average Craftsman: Understanding Skilled Work and Wages in the Early Modern Building Trades and Wider Economy

Judy Z. Stephenson

Gilboy Revisited

In 1930 or thereabouts a young Harvard economist visited the Muniments room of Westminster Abbey. She was researching the economy of England in the eighteenth century, and she was particularly interested in how demand for goods and the increased consumption of the working classes affected the development of the economy. In the early 1930s it was not really known to what extent money wages played a role in the English economy in the eighteenth century, and so, to make a case for such demand side factors the young economist needed to demonstrate the prevalence of wage earning in that period. Due to the ground-breaking work of JE Thorold Rogers in the 1860s she knew that at places like the Abbey she had a good chance of finding exactly what she was looking for; building accounts, giving the day rates for carpenters, masons, plumbers, bricklayers and their labourers. She was able to carefully transcribe the rates she found and turn them into a time series data set; a year-by-year

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list of the figures. She repeated the exercise at several other institutions and archives across the country. The results, published in 1934 as 'Wages in England in the Eighteenth Century', became the handbook on English wages for historians, one of the most influential studies even published in economic history. The rates are still used by economists today, who combine them with an assumed number of days work to give an average annual income for the workers of the past.[1]

Elizabeth Gilboy's contribution to economic history was groundbreaking and important in two respects. Firstly, the methodical and transparent approach to statistical analysis that she demonstrated in her gathering of the year-by-year data set a standard that others have followed. Secondly, in an age that was wholly absorbed with what we could call 'supply side' factors Gilboy's advocacy of a demand led theory of industrialization was way ahead of its time. These important contributions should not be forgotten, but her wage data have a very large and serious flaw. They are not 'wages' at all.

Gilboy transcribed the Abbey day rates from the Christopher Wren fabric book. Commencing in 1712 these sets of records are summaries of expenditure of coal tax monies on the refurbishment and repair of the Abbey under the Act for Fifty New Churches. They are not the journals or daybooks of a busy building site; they are important documents, produced with an eye on posterity, written in careful ink on parchment, and arranged in part to justify to Parliament the revenue that was being used to fund the project. The first entry reads 'To Edward Tuffnell, Mason, for worke done about the stone vaulting of the three chappells on the south side the east end of the collegiate church begun October 1712 and ended [the following] February'. It goes on to detail work done for £1971 17s and 12d including a 'day bill' of £226 10s. Further work is listed similarly, such as in February 1714 Tuffnell billed £874 for cutting arches but only £103 for day work in the same period. (He was paid for both on July 3, 1716.) The descriptions alongside the day work bills simply list number of masons, with no names, and give the same day rate for them all: 2s, 6d, or 30d.

Despite the fact that for such a large sum—Tuffnell's bills were for a total of £1971 in the first year of the project (1712–1713), equivalent to a contract of over £3m today[2]—the bills recorded only 699 mason days,

the equivalent of just two and a half masons for a year, Gilboy did not question the figures, nor that that all men (unnamed) received exactly the same rate, although for complex work there must have been different types of skill utilized, cutting, fitting, carving, etc.[3] This pattern of uniform pay was repeated in all the records Gilboy looked at, to the extent that she described it as a feature. It was taken by some as evidence of custom wage practices.

Could it be possible that work of the sort that was being carried out at the Abbey required just a couple of men for a year? Of course not. The 699 days recorded in the bills did not represent 699 days 'pay'. In fact, the men who worked for Tuffnell never saw 30d a day. This was what Tuffnell charged them out at, but he paid them directly according to skill and task. His masons were likely paid between 20d and 28d for the day, probably 24d or 26d depending on what they were doing, and there would have been far more of them than the day bills implied. In short, the records used by wage historians to date bear little relation to what craftsmen were actually paid. Rather, the data series based on them record pretty accurately, the price clients and building companies were willing to pay for one kind of service.

Since the 1930s Gilboy's figures have formed the basis for a London wage and, subsequently, real wage series by Leonard Schwarz published in the mid-1980s. He checked them against the Middlesex sessions files and the original Greenwich Hospital sources and produced composite average figures based solely on carpenters and bricklayers.[4] In 1996 Jeremy Boulton produced a substantive new series which covered the entirety of the seventeenth century from wholly new sources.[5] The series showed substantial variation in rates for the early period, with rates tending towards the familiar charge out rates at the end of the series.

Based on a ready reckoning by Arthur Bowley in 1900, that stated because there had not been technological change in the building industry bricklayers would be a good representation of the average worker over time, today's econometricians use these charge out figures as the 'average wage'.[6] With them they model the effect of wages on other economic factors, such as population, output, energy prices and others, or vice versa. In doing so they are examining the interaction between these other factors and the price of one part of a construction risk contract in early

modern England, not wages. Moreover, when they use these charge out rates as a proxy for skilled work and compare them to 'unskilled' labourers charge out rates they misapprehend completely the market for skill in early modern England.

A Day Rate Is Not Equal to a Day's Pay

The magnitude and the simple nature of the mistake at the heart of so much economic history can easily give rise to incredulity, precisely because the figures are so oft used, and the resulting econometrics so influential. Uncertainty about what building craftsmen earned potentially undermines significant and influential scholarship on centuries of comparative economic development, innovation, and living standards in Europe and elsewhere. Building craftsmen's 'wages' are the essential quantitative anchor which underpin arguments about the 'great divergence', the 'little divergence'. Established theories about why the industrial revolution was British, and other countries did not grow as rich all rest on 'wage series' which are actually series of prices for construction services. Surely it is not possible that so much influential work, by so many eminent people rests on false figures? It is possible, and clues to the misconception are in Gilboy's own text and are well documented in architectural history.

There are plenty of indicators in the previous literature that the means by which institutions organized building work was not through the direct hire of labourers or craftsmen. Elizabeth Gilboy herself acknowledged that it was contracts and bills handed in for payment that provided the sources of her Westminster figures.[7] In her discussion of the contracting system, Gilboy noted that the 'normal method' was for a master to contract work and hire his own workmen. She also suggested that there was a 'general tendency to farm out various county business'.[8] She also mentioned a type of contract where a master was retained to carry out work at an institution on an ongoing basis, and speculated that this might affect wage rates by fixing rates under a particular set of prices agreed for a period.[9] She referred to a well-known case of explicit discounting of wages in order to *deny* the idea that masters may have taken some form of markup or 'shaved a penny or two off wages'.[10] Those that knew more

of the ways of the construction industry have consistently found to the contrary: this was standard practice. Knoop and Jones were explicit that late seventeenth-century masons did business under a contracting system.[11] Elizabeth McKellar showed that the system involved complex credit and subcontracts.[12] Most notably for economic historians, in 2005 in a praised paper, James Campbell explicitly spelt out the implications for carpenter's finances and wages, but no one working with the wage data seemed to notice.[13]

It is well known that subcontracted management of building was standard practice from the mid-seventeenth century onwards throughout England, not just in London.[14] What Phelps Brown and Hopkins noted as a lack of data was merely indicative of the distance that architectural complexity and developing financial management of building works put between clerks-of-the-works, or paymasters and the men carrying out the work. 'From the middle of the seventeenth century the accounts become increasingly summary and rarely provide any wage data' is what Woodward noted for the Northern towns.[15] At New College Oxford, only bills from contractors can be found for the eighteenth century, the college had no direct employees in the building trades. At Middle Temple, after men were directly paid for building a garden wall in 1614 at 20d a day for workmen, and 14d a day for labourers there are nothing but contractors' bills. There were places where men were still directly paid as late as the 1660s. At Whitehall in the the decade after the Restoration the Office of the King's Works directly employed carpenters, bricklayers, labourers, and mazerscowrers, but by the mid 1670s the nature of the accounts change and contractor's signatures show that they took responsibility for hiring and deployment of labour. It is clear that Christopher Wren, his protégés, and associates thought that direct employment was both risky and wasteful in the construction process, and so it is likely that after Wren's surveyorship commenced in 1669 that direct employment throughout the works was minimized and indeed this seems to be the case.[16] In the eighteenth century all Works' bills are from large contractors. Labourers-in-trust and clerks-of-works at large sites were retained, although they had responsibilities other than building work, but all other construction labour, skilled or unskilled, was contracted through large specialist firms.[17] It is well documented that builders' price books for the nineteenth century include a 20 per cent markup.[18]

There are some good reasons why no author has identified day rates in institutional account books as 'charge out' rates before. Primarily there is only fragmentary evidence from actual contractors' records to compare them to. The 'rarity' of eighteenth-century wage records is well known and was one of the most notable things Phelps Brown and Hopkins drew attention to—a 'falling off in entries of all kinds'—in compiling the first seven centuries data set.[19] There is a simple explanation for this rarity.

Work 'by the day' was not the usual or commonplace employment contract, it was just one kind of building contract in early modern construction, and it was usually worked for large and rich institutions. Building work was priced in three ways (that are still broadly recognizable today); by the day, by the measure, by the great. Day work was understood to be a poor contract form as it incentivized builders to withhold or slow completion. Most building work (at all stages in including demolition) was priced and charged in a measured contract that gave a price per unit (length or volume) for finished work such as moulding, brickwork, carving, ashlar, joinery, or plaster. The unit price included labour and materials. The work would be monitored (measured) periodically, and only paid for if the standard pleased the client. This self-enforcing monitoring system made sure that the building firms and contractors bore the risk of substandard work, and the costs of production. Some work was priced by the task or great where the monitoring was less important. Day work was only chosen if these costs could not be estimated well enough for the contractor to offer a good price, and where the only way the work could be undertaken was if the financial risks of fulfilling the contract were minimized for both parties. When expenditure was accounted for at the end of the quarter or the end of the year these small number of days were the only things that looked like labour costs in the accounts, hence the 'falling off' of entries.

The 2s 6d per day in Tufnell's bills was what he charged the Abbey to provide a mason of specified skill to work for a day on a job that could not be accurately priced any other way. His costs of providing a mason for a day included his search costs of finding and placing the mason; paying that mason, the costs of finance (Tuffnell waited approximately 18 months for payment of most of his bills); his administrative and auditing costs such as his cost of calculating writing and issuing bills; his costs of

risk including the risk that the mason would make a mess of the job and he would have to replace or make it good; and the cost of his own time and pay in doing all of the above.

The matter of what he paid his masons, and what masons and other early modern construction workers and craftsmen in London *did* earn is more complex than just discounting the daily rate by Tuffnell's or any employer's margin however. Gilboy's method of collecting charge out rates affected not just our understanding of the level of wages, but the nature of work and the nature of skill. If she knew what they were doing it is unlikely Gilboy would have used her Abbey craftsmen as average workers. The following section discusses what craftsmen were really doing and what they really earned (a subsequent chapter will examine the pay of labourers) in the context of skill.

Skill, Time Worked and Income

Given the difficulties in coming up with anything else subsequent historians have taken and used Gilboy's data without question. Tuffnell's original papers are not extant, but those of others like him are. The rest of this chapter uses records from some rare actual pay records to describe how real pay worked in practice; and tries to consider, in light of that description, whether building craftsmen can continue to provide us with the proxy for the average worker that so much economic modelling relies on.[20] Woodward found that craftsman's and labourer's wages were mostly 'the interaction of the supply of labour and the demand for it'.[21] The factors he considered, however, were regulation, population, custom, and supply and demand in trades. Although he discussed the effect of changes in hierarchies of organization, and nature of contracts under which work was carried out, he could not establish their effect on wages.

Figure 5.1 shows the distribution of day rates paid directly to men in the team at St Paul's Cathedral under the employment of William Kempster, mason contractor at St Paul's Cathedral during the last decade of its' rebuilding 1700–1709. The data comes from Kempster's own daybooks, and bills in the Cathedral accounts show that Kempster was paid 30d per day for masons when charging by the day. Kempster paid his

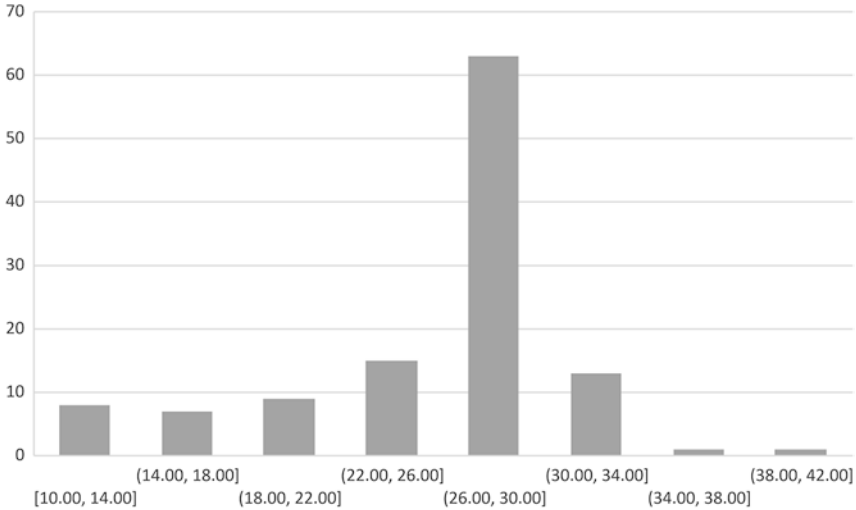

Fig. 5.1 Distribution of day rates paid to men listed as masons, Kempster team 1700–1709 St Paul's. (Source: TNA C106/145)

masons day rates from 10d per day through 36d per day. This distribution is fundamentally different from any wage material that has been found before. It shows that men of the same status—'masons' on the same site—St Paul's—were paid dramatically different rates.

Obviously, the level of skill that men were getting paid for matters. The kind of work Kempster was carrying out was directly comparable, and highly similar to the work that Elizabeth Gilboy gathered data for at Westminster Abbey. We know from Knoop and Jones's work from the 1930s, however, that sites like St Paul's had men of varying skill rates working side by side. Some men were training. Mason's company searches of 1674 and 1694 show many names as 'apprenticed' who did not appear on the Mason's company book. As some masons were free of other companies it is possible that those described as apprentices would have been registered with those other companies. Kempster had a formally indentured apprentice, Richard Day who was bound to him in 1700 and appears in the St Paul's day books, unpaid in his records until 1706, when he began to be paid at the rate of 26, and then 28d per day. This put him

in a comparatively well-paid position. Thomas Lutter who had been working at St Paul's since 1694 was never paid more than 26d per day. William Stonhouse, a freeman, citizen and with the resources to apprentice his son to Kempster in 1715 was paid two rates, 28d per day until 1706, and 20d per day thereafter. Perhaps he was injured or disabled in some way. Rough layers were paid 24d per day. The best paid—or man with the highest day rate—was Joshua Fletcher, on 40d a day as foremen, but also incidentally, a emerging contractor in his own right.

In other words, masons pay varied according to skill or productivity. The most skilled men were paid the highest day rates, but only a couple of them worked continuously for Kempster. The very well-paid men (over 30d a day) never appeared as 'masons on call'—which the Cathedral paid contractors at a set rate of 30d a day for. The most commonly occurring rate, or 'mode' for all masons men's days in the team was 28d per day, but there are some very good reasons why it would be highly misleading to think of this as the 'average' wage for London craftsmen, or masons of the time.

Of the men paid the rate of 28d per day a substantial portion were freemen, entitled to trade on their own account and contract just as Kempster was doing, and to take their own apprentices. They were working on the largest, the most prestigious, and the most expensive project in London. They had significant experience, some more than 25 years. Names in the Mason's Company records suggest that some of them were of well known mason families, and some had long experience working or subcontracting for well established firms at other sites.[22] Included in the group earning 28d a day in 1700–1709 were Mick Growden who had been on site in 1694 apprenticed to John Ffilkes (it seems not of the Masons), who subsequently became the master of the team at St Paul's, Rich Day who had trained seven years under Kempster, Will Sutton, and Will Ash who also worked for Edward Strong at Greenwich in this period, John Magnus and Richard Goodchild who had been on site at St Paul's in 1694. Tim Curtis had worked for Thomas Knight in 1667. John Duckmonton was a skilled 'foreigner' called by the masons in 1686 to pay his dues, and who refused. Richard Duffield and Thomas Lutter who had also been on site in 1694 earned only 26d per day more than a decade later. (Duffield was an apprentice on site in 1678.) The group who

earned 28d per day at St Paul's may have been the predominant group in Kempster's books—but that was only because of the nature of the work the firm was doing. They were by no means average; they were quite simply the most skilled masons in the market, and they only worked on such fine stone-built projects. Some of them may well have gone on to work for Tuffnell at Westminster Abbey—in fact since Tufnell had been apprenticed to Kempster's father, Christopher, such networks and interrelations are likely. Within the construction industry as a whole these men were far more skilled and probably far better paid than the average skilled worker.

The problem of finding and defining 'average skill is compounded by the unique labour conditions that construction dictates. A building site is not a production line. Although there was prefabrication and batch production in building, even at this time, the projects that we have craftsmen's records for, large stone-built, architecturally designed legacy projects were highly idiosyncratic.[23] The skill profile of those on this sort of site varied hugely throughout production. At the commencement of a project demolition men and labourers cleared and prepared the ground. The laying of foundations required both this heavy labouring and highly trained engineering expertise. The construction of walls required men who understood weight bearing geometry and architect's designs, who could rough lay stone to weight bear, but, in latter stages, stone fitters who could carve stone to shape and fit it smoothly.

Working at height with structural vaulting immediately required scaffolders, or carpenters, who could build temporary structures not just to hold men to work at height but to centre and support the vaults themselves. Carpenters also fitted joists and boards, with enough understanding of geometry and engineering to safely span large spaces. Brick workers needed the same engineering and vaulting skills and the ability to work at speed with masons. Openings and staircases required the same with advanced fitting, and carving, and decorative and functional joinery, doors, staircases, openings, wainscot, etc.

It is apparent from this brief summary of work descriptions that much of the work at sites like these was highly specialist, but unless men had skills that were relevant to all stages of the specialist construction processes they would not be on site throughout. And it was only the very large projects which extended through a calendar year or years. By con-

trast, in residential work, that of subdividing London's town houses, remodelling rooms, erecting walls, replacing doorways, installing screens, replacing tiles, securing soffit, fitting cornice wainscot, inserting windows, stairways, etc., the skills required were perhaps more likely to be transferable. They required a portfolio of skills much more akin to a jack-of-all-trades, but most London houses were built within a year. More specialist trades in London housing, including glazing and plumbing, may have been the same men or the same firms who worked for the large legacy projects. However, it should be clear that the search costs for work would have been considerable everywhere, either because the duration of projects was short, or because the skill requirement was specialist.

As Fig. 5.2 shows that the number of men who could command 28d per day who could also sustain a full working year with Kempster was very small. It is obvious that if they were not working for Kempster, they were probably working elsewhere, but given the long association that some of the men had with Kempster, we cannot describe the market as a 'spot' one. The number of days that men worked when they were on site for Kempster is slightly higher for men who had long-term relationships than those just passing through. This suggests that there were both search

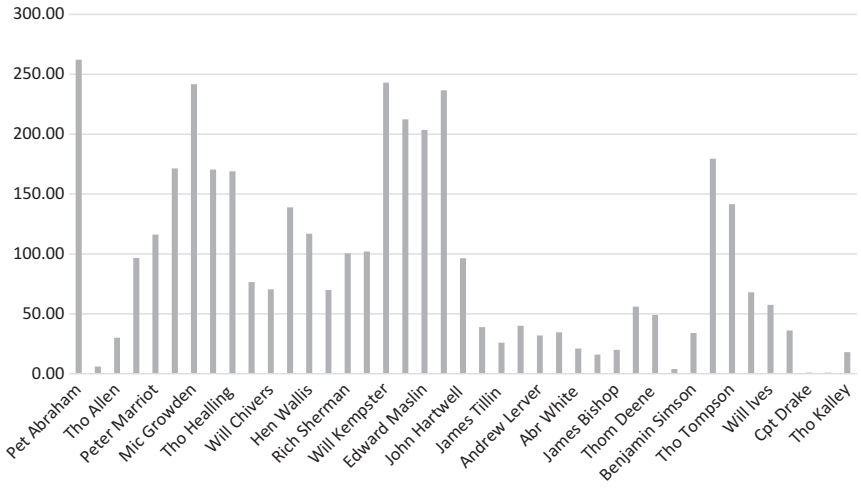

Fig. 5.2 Average number of days worked by craftsmen on day rate of 28d (average = 92), Kempster's team, St Pauls, 1700–1709. (Source: TNA C 106/145)

costs and internal labour markets for days work. Based on Kempster's team it seems men who had regular work and a regular employer worked very long hours and a high number of days; more than five days a week, 11 hours a day. Men who did not have such an employment relationship will not have had the same income.

However, records indicate that even in the late seventeenth century and early eighteenth century the availability of work was less seasonal than some have thought. St Paul's was operational throughout the year. Kempster's records show that the busiest quarter of year was October through late December, and this is a pattern seen elsewhere, albeit with January and February showing the least amount of activity and days worked at all sites. London Bridge was operational as a maintenance site year-round. Just as at St Paul's however, it was only a very small number of men, the contractor's foremen and a couple of apprentices, who received work throughout the year, with the greatest number on site between late March and November. Most of the men who were contracted regularly were paid by the tide, not by the day, and tides were seasonal. In other words, Kempster's men at St Paul's possibly had above average access to work, as well as above average skill and pay. In other trades conditions and skill profiles would have been similar. Bricklayer's day rates have been noted as high in the past, but mostly bricklayers worked by the rod not by day, so the day rate only reflected work that could not be estimated by the day. Plumber's day rates appear in accounts, but plumbing work does not much, as fitting drains and pipes was reserved for the end of a project. Glazier's similarly.

A man's income was then a function of three things. (i) His day rate (ii) at the level of skill he worked, and (iii) the number of days that he worked. And (iii) was a function of the amount of work available and his information and networks that helped him obtain it. In the late seventeenth century and early eighteenth century we know that not only was there a great deal of work at St Paul's, but at City Churches too, and during this time at Greenwich, later at Westminster. If a man had no work at one site he could, and probably did, work at others. There was a house building boom in London until 1721, but the years after that until at least 1740 indicate a severe drop in construction demand.[24] Church projects were already completed, and fewer new ones commissioned after the late

1720s. Housebuilding saw a huge drop in output. This would have dramatically affected the number of days available for the vast majority of building workers. Given what we know about working patterns this is unlikely to have affected all men equally. Those who had long-term employment relationships would have lost the fewest days, and those men who were generally casual would have struggled to find any days.

If a man found work in the busy period of October to December and worked 13 weeks therein, then had a break in January finding work towards the end of February, with three jobs before June, and three after with a search period of a week in each instance this would give him a working year of 40 weeks. Assuming a working week of five to six days as the average at St Paul's this would give him 208 days' work. But without just one of these other jobs his days would have been c. 185 days. This is not just plausible, but likely for men who did not have a long-term relationship at one site. Only men who had continual employment, and no search for work could have worked a year of in excess 240 days.

The Non-pecuniary Question

In examining the charge out rates at Greenwich and London builders' price books in the long run against the prices of consumables Leonard Schwarz concluded that the obvious resultant drop in builders' standard of living must have been mitigated by builders taking an increase on non-pecuniary pay, or perks. Although it is well known that shipwrights refused to forfeit chips for derisory pay increases throughout the eighteenth century, the contracting system outside the dockyards would have made it virtually impossible to pilfer or take any materials in lieu.

If building craftsmen were taking materials and goods off-site, the evidence, of course, would not appear in account books, but it is not plausible that masons, carpenters, plumbers, or joiners were making a substantial additional income from perquisites: contractors were charged by clients for goods that they took off-site. Contractors had to record waste or reclaimed goods taken off-site, the values were deducted from materials bills. In 1712 at Westminster Abbey old lead was charged to be taken off-site at 12s per lb, and new lead purchased at 15s per lb.[25] At the

Office of the King's Works in 1779 new lead was priced at 19s 6d the lb, and old at 16s 6d the lb.[26] At these prices contractors were not going to let men take goods off-site. The issue of wastage is taken very seriously indeed in accounts, and watchmen were hired to prevent it.[27] This is not to say that a length of timber, or tool, or nail never made it off the site in someone pockets, but it is to say that it was difficult enough to do that we can safely assume that perquisites made no substantial difference to the welfare of workmen.

In earlier periods it was known for journeymen hired on longer term contracts in other trades to be remunerated partly with board. There is no evidence of anything being used to pay workmen except money in late seventeenth century and early eighteenth century accounts. There are a small number of instances of some sort of food given, but these seem an exception that prove the rule. Paviour's bills at Bridge House in 1721 and 1722 include 'breakfast', charged at 1d per person, by the contractor. Paviour's on the Bridge, of course, had to work overnight, and this was for winter work. In 1722 the tide carpenters had drink on one occasion. None of the tide carpenters, the land carpenters, or the masons who were working on the bridge 1685–1788 were paid in kind in any other way.[28] There are two Tide Carpenters' bills that include drink for the men in the 1730s, but there are no other references to this elsewhere, nor do purveyors' bills include any food for workmen.[29] Unless contractors fed their men out of their own operating margin it was in no way common, routine, or normal practice for London building workmen to receive payment in any sort of kind 1660–1780. There are no accounts for food at any large Crown or City site from 1670 through the end of the eighteenth century. Carpenters working in 'the wet and the cold' in January in 1744 on Westminster Bridge, in experimental caissons were given the universal analgesic of the eighteenth century; gin.[30] The effect on their living standards and that of their families is debateable. The idea that this sort of 'perk' maintained the living standards of an entire class of workers when the nominal day rates had not moved upwards for decades is not plausible because those who would have benefitted from such behaviour were contractors not workers.

The question of tools arises. Donald Woodward found that craftsmen owned and maintained their own tools.[31] There are some small notes in

Kempster's books for smiths' bills for sharpening saws and edge tools. We know that the mason at London bridge had an allowance of a £1 1s a year for 'edge tools'. But there is a conspicuous lack of bills or notes for the everyday tools of trade in either the institutional books, or Kempster's, or nay of the Bridge House contractors. The everyday tools such as combs and chisels seem to have been provided by the workers themselves, whilst specialist and large items were provided on site.

Whilst Mordaunt-Cook wrote that the Office of the King's Works become a paternalistic organization that looked after injured men, and widows and children there is no suggestion that medical care, nor superannuation was in any way formalized, in the King's Works or elsewhere, rather individual cases were plead on the basis of loyalty or long service.[32] At St Paul's the commission gave pensions to the families of those injured or killed on site.[33] Mentions of sick pay are rare. It does seem as if contractors as well as institutions felt obliged to pay some form of temporary support in cases of death or injury, but not enough for workers to feel that they had any form of social insurance. The letter book of Andrews Jelfe gives details of 'Nov 5th gave a poor woman whose husband was killed in my quarries that day I gave it her, she was left with 3 children… £0, 7s 0d'.[34]

If non-pecuniary and perquisite were not a substantial part of the reward for work, there are some other quirks of payment or forms of payment by trade that should be noted. Bricklayers mostly worked in pairs. Throughout most of the eighteenth century, 4s a day was the rate for a bricklayer and his labourer or mate for most of the eighteenth century (£1, 4s a week for the pair). Sawyers were similarly paid in pairs, apparently 5/9ths in favour of the 'top dog', but they largely disappear from the records by the second half of the eighteenth century. It is also important to recognize that we only have rates for a sub-section of the building trades. Smiths, glaziers, and plumbers only rarely charged a day rate as their bills more usually specify work done by the piece, or measured work, detailing the weights, items, materials, and work done to the price. If day rates were charged it is probable that they represent higher labour rates than usual, due to having to be hired in.

There is, unfortunately, no way of knowing when or where men were paid. Even the St Paul's accounts are obscure on the subject of where the

pay was issued from, at what time or on what day. In summary, construction workers were paid in cash, mostly weekly for the number of days they had worked that week, and they were not paid anything other than money for their work. If non-pecuniary pay did not make up the shortfall that Schwarz found then we must consider craftsmen's pay in a new light.

Hierarchy

The uniformity of the rate found by Gilboy and reproduced by others allowed economic historians to think of craftsmen's pay as homogenous, and to think of skill as binary. In this view of the world men were either unskilled (labour) or had been apprenticed for seven years to become 'skilled'(craft). Since the prices for such skill were so similar it was assumed that the value the market assigned such skill was similar—that there was some custom of paying men who had formally learned their craft similar rates. A further examination of building sites or labour markets in general in the early modern or any other period shows that view to be erroneous.

The construction industry has always employed a wide range of skill and that skill is always engaged at varying prices, according to specialism, rarity, and productivity. In the period from the Restoration to industrialization it seems to have paid that skill by the piece (the rod, the foot, the cubical measure, the tide which seems a hybrid of time and piece) and also by the day.

At St Paul's the levels or groups would have been as follows. At the highest level of craftsmanship, were specialists such as carvers (including on some cases what we would call artists doing work similar to that of Grinling Gibbons). They worked by the piece, or when they did by the day, they earned a large premium. In 1700–1709 that was 28–32d per day which represented 1.8 times a semi-skilled labourers' day rate, or 2.7 times an unskilled man's rates. Below this group were men who did not have the networks or the expertise the senior freemen did. They may have been less experienced, or they had trained with lesser men or on lesser projects. They could command 24–28d a day on short term or long-term projects. There were also men then who worked with such teams but consistently at a much lower rate. They may have been provid-

ing ancillary services, or they may have been assistants to highly skilled craftsmen. At 24d a day also were rough layers who worked only on the supporting masonry, and because of this would have only had a small number of days available to them. Non-apprenticed trainees earned 12d a day or less.

Beyond the prestigious works managed by the Crown and City were thousands of men who will have trained in a specific trade such as carpentry, but subcontracted skill to others when required. They carried out repairs, remodelling, and subdivisions. They would have taken up day work in their trained trade if it became available but not at the highest level of skill.

It is not likely that their day rate was the same as the senior craftsmen working on St Paul's, and they were not average at all. Most of the craftsmen at St Paul's would have had skills in co-ordinating and managing others, and possibly in procurement also. They were in effect small masters, working for others. The formation of their pay was unlike other trades, the availability of work was idiosyncratic to the industry, they were not all paid by the day, and their employment relations were determined by factors also idiosyncratic to the industry. Using building craftsmen's charge out rates as that of the average skilled worker is to base real wage and other economic calculations on a fiction of high day pay.

The Composition of Average

To understand why trying to glean an 'average' for skilled craftsmen in London out of data such as Kempster's, we need to return to old debates about the possibility and methodology of calculating an average wage for the past, specifically to Bowley's assumptions.[35] Today's statisticians have the benefit of a data set for the whole economy from which an average wage can be calculated; the median or average figures are taken from a random representative sample of 1 per cent of the taxpaying working population. Such data is not available for previous centuries. As a substitute Bowley proposed that if wage data could be sources from an 'average' trade, that was not affected by technological change then this would serve to observe trends in nominal and real wage earning.[36] However, for a reli-

able average to be calculated we need to know a population—or total number employed, and a reliable number of observations. Kempster's books may allow us to do that for his team, but we have that kind of data for no other site, and if we did we would find the daily average to fluctuate with the level of specialism on site. We can never know an average wage in a way that modern official statistics allow us to calculate it.

In studying trends in the real wage in the very long run what matters is the relative movement of wages and prices; the level of the nominal figures themselves matters less than their relative change.[37] There is a long tradition in economic history of treating the resultant trends in the real wage indicative of economic growth or decline. The assumption that the real wage and growth or economic output are perfectly correlated is not a reliable one however, and thankfully an important recent output-based approach to the economic performance of the past has potentially diminished the role of the real wage as the key indicator of GDP.[38]

We are on also shaky ground when nominal wages themselves are understood to be average or 'representative' of a particular group's purchasing power at any given time. The composition of households, their nutritional needs, the availability of work, the variations in prices in any given year, the other costs that workers and families faced, and the value of money, were far more variable and uncertain than those who have used real wages to infer living standards or long run economic growth like to admit.[39] If, as this book makes the case, existing wage data cannot be relied on then it might be argued that a simple consumer price index based on the prices could be as reliable an indicator of changes in general living standards as any wage series. However, in order to understand the wider social and political economy, and comparative performance between regions we will always need estimates of incomes. The challenge is to make 'wage series' meaningful and representative of the actual earnings of the past.

In simple terms 'more wages' will go a long way to 'better wages'. At present the task of estimating wages or income, in any country or region, universally relies on a limited range of basic data derived from the day wage rates of some builders and agricultural labourers sourced from large institutions (mostly for urban workers) or very long running family enterprises (mostly for agricultural workers). Builders and agricultural labourers were chosen because of their relative availability of 'day wages',

which were perceived to be representative of a day's income, the perceived constancy of their status, and the notion that only technological change affected social structure. All of these assumptions can and should be tested by producing comparative income series for other groups and occupations.

Very few people in London between 1650 and 1800 were paid by the day. Most manufacturing workers were paid by the piece, those in service were paid by annual contract, workers in trade and distribution were paid by position or on some kind of commission. If in the past we did not have the computing means to process such a wide range of contracts and pay variables, we do now, and the richness of archival sources can provide vast material.

In order to process such material assumptions about skill levels need revaluation as recent work on the composition of the workforce in the nineteenth century suggests.[40] The assumption that 'labourers' represent unskilled urban workers is false, as the next chapter shows, but we should have a clear idea of whom the skilled workers actually were, and whether they can be treated as a homogenous group, or whether there are sectoral differences.[41] For long eighteenth-century craftsmen, the binary 'skilled vs. unskilled' way in which construction data has been gathered has led to the lumping together of day rates for precious carving and run of the mill bricklaying in the same category, yet the range around the average level of skill or it's reward has not been specified. However, in many existing sources, there is enough contextual information, work descriptions, names, etc., with which to be able to attempt taxonomies or hierarchies that specify such skill and establish a range, so that the average, or at least the range of skill can be more meaningfully estimated.

It is not possible to, as Bowley intended, gather representative data for all workers or replicate contemporary data gathering, but given the considerable recent work on social structure in the United Kingdom by the Cambridge group, and others elsewhere it is plausible to start to examine earnings and wages for other groups and establish with the use of traditional and non-traditional probability estimation, good estimates for the shape of the labour force and the largest and most representative labour groups within it.[42] It's also time to move beyond the simplistic notion that there were just urban and rural sectors and, the exciting possibility of

producing regional (as opposed to national) wage series that will offer a more accurate estimation of welfare in both short and long run periods.

If a day wage is not necessarily a day's income a critically important issue for revision in understanding incomes is the number of days worked by workers, and how and why they were distributed. Those who have worked on the history of the building industry and its workforce have frequently stressed the difficulty or impossibility of making the leap from day wages to earnings, and a number of articles in this volume have criticized the attempts that have so far been made to estimate changes over time in the length of the working year. If historians are to use day wages as a measure of income then the number of days worked will determine that income. Until now this figure has been entirely assumed or derived from wages and prices. The fact is that we currently have virtually no substantive estimates for the working year in the building industry, and we have not considered enough the working hours in other industries or types of contract, although wage series for the Paris basin have always been adjusted for the seasonality, and the trade specific demand in work.[43]

A major area for research is a better understanding of the earnings and work of women and children, and how this affected living standards. Current scholarship shows that women's employment and wage payment was prevalent, but also highlights that this had mixed effects on welfare.[44] The traditional wage series assume a male breadwinner; more work needs to be done on household composition and lifecycle as well as the serious issues of consumption, and again, recent work on social structure and occupation highlights the possibilities of regional, empirically based studies.

There remains the very real issue of compatibility between regions and countries for the purposes of international comparisons. In recent years, silver and grain wage methodologies have been generally superseded by welfare baskets. The additional information of skill levels, seasonal and working day information, household composition, and non-pecuniary reward can do nothing except enhance the accuracy of relative comparisons as current technology allows such comparisons in databases.

In the mid-1950s, Phelps Brown and Hopkins, in compiling the original 'Seven Centuries' noted difficulties in both sourcing nominal wages and ensuring compatibility and comparability over time. Nearly

seven decades later we have both access to better sources for incomes, and the econometric power to estimate the relationship between them and the prices of consumables in much more meaningful ways. Until that work is done what can we say about the 'average' building craftsman in long eighteenth-century London? Whether master or journeyman he probably worked for another. He may have had his own basic tools, and he clothed and fed himself for work. If he had specialist skills or worked with someone who did he may have benefitted from large long-term project work, but without this, projects or jobs lasted a few weeks. Only the most skilled among his peers earned the sort of income we have previously calculated. His working days were up to 12 hours of hard physical labour, but his shoulders were probably never broad enough to carry the weight of scholarship that has rested on them until now.

Notes

1. https://www.nuffield.ox.ac.uk/people/sites/allen-research-pages/.
2. Calculated at http://www.measuringworth.com/ppoweruk/; Westminster Abbey Muniments, Christopher Wren Fabric Books, 34513, 34514.
3. Gilboy, *Wages in Eighteenth Century England*, p. 13.
4. Schwarz, 'The Standard of Living', pp. 36–41.
5. Boulton, 'Wage Labour', pp. 288–289.
6. Bowley, 'Wages in the UK', pp. 59–60.
7. Gilboy, *Wages in Eighteenth Century England*. pp. 5, 11–13, 46.
8. Ibid., pp. 6–17.
9. Ibid., pp. 17, 46.
10. Gilboy, *Wages in Eighteenth Century England*. p. 17.
11. Knoop and Jones, 'The London Mason'.
12. McKellar, *The Birth of modern London.*
13. Campbell, 'The finances of the carpenter'.
14. Pollard, *Genesis of Modern management* p. 11.
15. Woodward, *Men at Work*, pp. 268, 270, 273.
16. See Airs *The Making of the English Country House*, pp. 45–47; Campbell 'The Finances of the Carpenter in England'.

17. See TNA WORK /5; by way of example see Warrant Books: April 1715, 21–30′, in Calendar of Treasury Books, pp. 490–498.
18. Powell, *The British Building Industry since 1800*, pp. 30.
19. Phelps Brown and Hopkins 'Seven Centuries of Building wages' p. 195.
20. Donald Woodward, 'The Determination of Wage Rates in the Early Modern North of England', p. 23.
21. Ibid., p. 38; Woodward, *Men at Work*, pp. 169–209.
22. Cliff Webb, *Masons' Apprentices*.
23. See Ayres, *Building the Georgian City*, pp. 109–160.
24. Shepherd and Cotterill, 'Middlesex Deeds'.
25. Westminster Abbey Muniments 34513. Plumbers' bills.
26. TNA WORK 5/67.
27. See Wren Society accounts, all years, all months.
28. It is known that contractors and senior craftsmen were not above claiming for days worked that they had not, though, Latham 'The City has been wronged and abused'.
29. COL/CC/BHC/ 10 003–006.
30. TNA WORK6/46 p. 19 and Etheridge's (carpenter's) bills for winter only.
31. Woodward, *Men at Work*, p. 49.
32. J. Mordaunt Cook in Colvin et al., *The History of the King's Works*, vol. V, pp. 107, 108, 110. Funds were found from the sale of old building materials.
33. Campbell, *Building St Paul's* p. 39.
34. BL MS27587 p. 12.
35. Bowley *Wages in the UK*, pp. 18–23, 59–60.
36. Ibid.
37. Feinstein, Pessimism Perpetuated: Real Wages and the Standard of Living in Britain During and after the Industrial Revolution, The Journal of Economic History 58, no. 3 (1998).
38. Broadberry et al., '*British Economic Growth*' Chap. 5; Angeles, 'Real wages and GDP'.
39. Humphries, 'The Lure of aggregates'; Hatcher 'Unreal wages', Merry and Baker 'For herself and one Servant'.
40. de Pleijt and Weisdorf, 'Human Capital Formation from Occupations'.
41. Stephenson, 'The pay of labourers'.
42. https://www.campop.geog.cam.ac.uk; https://collab.iisg.nl/web/hisco/about

43. Durand, 'Recherche sur les salaires des maçons Paris au xviii siècle'; Baulant, 'Le salaire des ouvriers du bâtiment à Paris, de 1400 à 1726'.
44. Erickson 'Married women's occupations'; Humphries 'Lure of aggregates'.

Online Resources

https://www.nuffield.ox.ac.uk/people/sites/allen-research-pages/.
www.measuringworth.com/ppoweruk.
'Warrant Books: April 1715, 21–30', in Calendar of Treasury Books, Volume 29, 1714–1715, ed. William A Shaw and F H Slingsby (London, 1957), pp. 490–498. British History Online http://www.british-history.ac.uk/cal-treasury-books/vol29/pp490-498 [accessed 3 May 2018].

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6

The Pay of Labourers and Unskilled Men on London Building Sites, 1650–1770

Judy Z. Stephenson

Introduction

Labourer's pay is an important measure for economic historians. Their wage is used to calculate living standards, skill premiums, and trends in real wages, and has been since Henry Phelps Brown and Shelia Hopkins constructed the first long-run series of building wages.[1] Until relatively recently historians stressed that the money wage was perceived to be only part of the remuneration that men received in the building trades, but in the last two decades macroeconomic models have stressed the day wage and used it as a proxy for income on an annual basis by assuming a number of days worked per year—usually 250 or over.[2] London wages feature predominantly in the most influential real wages series currently used by economic historians.[3]

The sources for Phelps Brown Hopkins and all subsequent urban wage series in England have been based on a surprisingly small number of archival sources and an assumption that labourers working at Greenwich

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Hospital, Westminster Abbey, and other important eighteenth-century London building sites were 'unskilled'. My recent work has shown that most of the original wage series that used these sources read charge out rates instead of 'wages', so that the existing series of skilled and unskilled day wages overstate monies actually received by men by 20–30%.[4] This chapter asserts that a misunderstanding of skill level has further inflated our perception of 'unskilled' wages in England.

The reasons why labourers fulfil the role of the 'unskilled' man in wage series are a path-dependant story of record bias going back as far as Thorold Rogers. He did not construct a wage series per se, but recorded the price and description of work charged for in bills and accounts in large institutions such as Westminster Abbey, Oxford and Cambridge Colleges, and Middle and Inner Temple. Most of them had records of building work and labourers work, both as part of and distinct from the building accounts. Arthur Bowley's subsequent assertion that lack of technological change in the building industry made building workers suitable as a proxy for the average worker in the long run allowed later historians to assume that the term 'labourers' refered to an homogenous group of the unskilled in construction.[5] The taxonomy of skilled and unskilled was continued by Gilboy, although she gathered data for many varied construction trades.[6] Her recording of the day rates of labourers assisting masons, carpenters, paviours, glazers, plumbers, and bricklayers in Westminster Abbey, Greenwich Hospital, and in the records of the Middlesex Sessions 1700–1787 formed a continuous London series for the eighteenth century, and her figures from Maidstone were combined with those of Rogers to form Phelps Brown Hopkins' series.[7] Leonard Schwarz later augmented the Middlesex sessions series on the same basis.[8]

Over the decades, there have been doubts or questions raised about the role of labourers and their skill level by three important authors. Steve Rappaport explicitly described labourers working with bricklayers, tilers, and plasterers for his sixteenth-century wage and price series as *semi-skilled*, 'assisting craft', not unskilled.[9] Jeremy Boulton also hinted that labourers might not be wholly unskilled. Boulton's sources were bills in from a wide range of institutions (but Gilboy by contrast, recorded predominantly labourers assisting craft on just two large sites). Boulton presented a plot of his data so the variation in rates recorded

could be observed; yet, the series he presented was determined by the modal rate for each year, and it is these modal rates that went into Allen's series.[10] The range of rates from 1655 to 1690 for labourers was 16d–36d but the modal rate recorded was 20d, and after 1690 it was 24d. Given such a range of rates, the question arises whether this range of pay applied to a group homogenous in skill, or whether our nomenclature of 'labourers' has resulted in a confusion of skill levels.[11] Evidence of labouring work from all sources highlights that labouring men varied in their abilities and the worth of their work. A binary skilled/unskilled measure of labour value completely misses a key aspect of the role that labourers had in the early modern economy, that of *strength*. For, as proposed by Joyce Burnette, strength was of vital importance in preindustrial economy and so it commanded a premium in preindustrial labour markets.[12]

Third, and most explicitly, for northern towns, Woodward found that the market for labourers consisted of 'three main categories': those who 'assisted craftsmen', porters or those 'doing a single task', and a 'majority, working in gangs', who did many types of work.[13] This suggests a hierarchy and range of skill. In fact, the great majority of Woodward's text and data on wages comes from labourers *not employed* in the building trades at all—for instance, in Hull from labourers and porters employed to handle and transport goods at the quayside.[14] Woodward showed that the market for general labourers was separate to that for building craftsmen, and that labour worked in mobile gangs to take up work, noting differentials in pay for labourers and that those assisting craftsmen earned much more than those not.[15] Examples given showed a 20–100% premium for working alongside craft.[16] Similarly, the 1824 Select Committee Report on Labourers Wages showed, in most of the counties it took evidence from, that there was a difference between the better sort of work, and men, and lesser kind. The better kind commanded a premium of between 20 and 50%.[17] Yet those compiling aggregate wage and price series accept the skill of labourers as homogenous in the long run, presuming labourers to be 'unskilled'.[18]

Despite their equivocal basis, it is Woodward's labourers figures which provide the 'unskilled' northern urban wage for England in

Allen's influential series, and which are compared to Rappaport's and Boulton's data which form the London wage series for the period 1450–1721 (and a significant proportion of those of Clark).[19] These same sources are used by Allen, Clark, Broadberry et al., Van Zanden, and others.[20] These series, presented in nominal form, show increasing income for southern urban labourers throughout the 1600s to about 1710, followed by a period of stagnation of rates until the 1740s, and a dramatic rise after 1793 (Fig. 6.1). The story for building labourers in the northern towns shows gains in rates in the early 1600s that mirror those on London rising from 6d a day through 12d but a stagnation in nominal pay at this rate throughout the whole of the long eighteenth century, from the 1640s until the late 1790s. The average or median rate used in series by Allen for London is 12d per day in 1600, rising steadily throughout the seventeenth century to 20d by the 1670s, peaking at 24d per day in the 1690s with a drop to 22d through the early decades of the eighteenth century. After 1736, the rates rose to 2s or 24d per day again and were largely sustained there, until dramatic rises in the price inflation at the end of the eighteenth century.

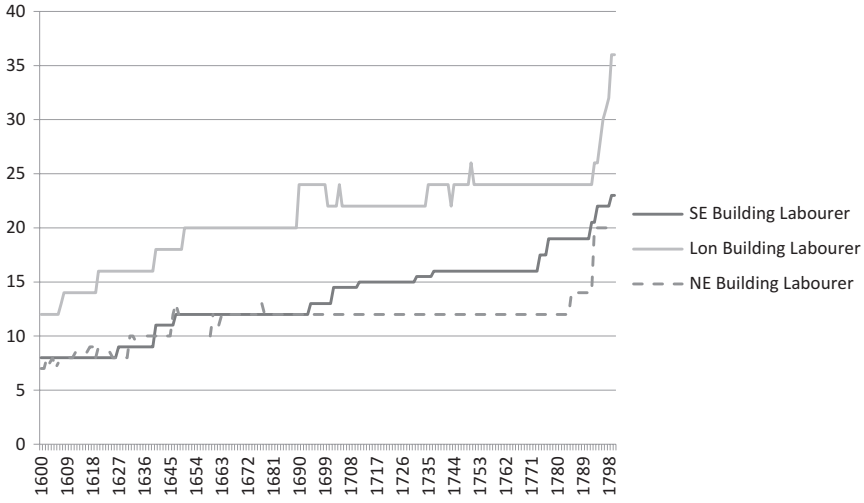

Fig. 6.1 Labourers day rates in d per day as compiled by Allen (2001, 2013). (Source: https://www.nuffield.ox.ac.uk/people/sites/allen-research-pages/)

These nominal figures are the core support for the story that Britain was a 'high wage' economy, because, by multiplying the day rate by estimated numbers of days worked in a year (although there are no substantive figures for the number of days men worked in the year in this period) in combination with the prices of baskets of good deemed either 'subsistence' or 'respectable' they produce a real wage.[21] Allen finds that this unskilled real wage is consistently higher than other European cities and supported the statement that in London 'even unskilled workers always earned enough to buy the respectability budget', and 'Throughout the eighteenth century, fully employed labourers in Oxford were earning enough to buy the respectability budget'.[22]

The next section will present new data from three large, important, and relatively representative construction sites and organizations in London to illustrate the different types of labouring work and to inform a new categorization of labourer's skill in the building trades in London in the early modern period. The final section will examine what this means for our understanding of wage levels, skill premiums, and other derived ratios for London.

Labourers at St Paul's Cathedral: 1675–1725

The rebuilding of St Paul's cathedral after the Great Fire of London was the largest and most prestigious project of late seventeenth-century London, and there are voluminous records of both contracts and payments. Labourers and unskilled men on site were employed under various contractual arrangements by three types of employers. The first of these were large specialized contractors in the traditional trades or crafts working on the construction—masons, carpenters, plumbers, plasterers, and so on. These contractors were established businesses who contracted with the Cathedral in a number of contract types including day work, where they charged an amount for men by the day, task work, and or measured work where the labour costs were billed as part of an agreed contract price for measured units of work.[23] The day books of one of these mason contractors show large number of labourers paid a steady day rate of 18d a day 1700–1709 for assisting skilled carvers and masons

on the south west tower, fitting the geometric staircase and the columns of the west front. (Sadly day books for the other contractors on site are not available, so although we know other contractors employed semi-skilled and unskilled men, we can't be sure for how much they were paid, although we can be confident it was 18d or less, as 18d was the maximum the Cathedral would pay bills for. We have no idea how many of the men there were.) In the same books, there are records of numbers of men paid less than 18d a day, presumably because they were unskilled, or perhaps training—although apprentices (of which there were two) were not recorded as being paid a day rate. In 1706, 1707, 1708, and 1709, ten men (not listed as labourers) were paid day rates of between 10d and 16d a day.

Second, St Paul's was also one of the last large institutions in London to hire their own labourers directly to assist contractors generally and to haul materials around the site, carry out digging, prepare ground, and so on. The Cathedral's accounts record that named labourers working for the clerk of works from 1675 to 1725 were paid mostly 16d per day in winter and 18d a day in summer, implying an average day rate of 17d Substantial numbers were paid 12d a day, and sometimes 8d a day through the 1670s to 1690s, and small numbers continued to be paid 12d until the 1710s[24] Job descriptions for the Cathedral labourers are various but consistently include work such as listed in the books for July to September 1698:

> Labourers employed in clearing rubbish from the top of the works, and wheeling same to be screened, hoisting of timber to the roofs on the north-west and south east of the parts of the Dome, making water for the bricklayers and masons, and serving bricklayers, wheeling rubble and mortar from the West End to their several places where the Masons hoisted it up unloading of the Portland and Headington stone in the churchyard, unloading of Reygate block and ashlar and piling it up in sheds, sweeping the streets around the church, melting of lead for cramps and steps and pumping therewith, beating and burning plaster, looking after of leads and gates etc.[25]

In other words, there was a range of work undertaken by the Cathedral labourers; they were jacks-of-all-trades. Some of it, such as sweeping,

wheeling smaller loads, and looking after leads and gates, could have been done by anyone; it was truly unskilled. Hoisting of Portland and precut stone (ashlar) so that it didn't smash, on the other hand, required strength, as did hoisting timber up to the Dome. It is likely and fair to assume that the men with experience of working with such loads and strength got the higher rate, and sweepers and gate openers the lower one. There are plenty of entries in the St Paul's accounts to support Burnette's thesis that strength commanded a premium in the early modern economy. The Cathedral's books include entries for hoisting task work, and for piece work where they offered 2s 6d per tun hoisting stone to the top of the works. In 1676, they paid four number of men who had also appeared on the books as day labourers £293 for taking up 263 foot of foundation wall 'at the foot of the old pillars … at 18d a yard'. This work included clearing the stone taken up, and the four men named in the contract (of which there are many similar) must have had the social and financial capital to manage the contracting process and the wait for payment, although they would also take work at 16–18d per day.[26]

Third, general contractors and non-craft contractors also had their own men, such as the team working for John Slyford who carted materials to the site and rubbish away from it at rates per load for the period of the construction. Slyford's bills do not record any labour costs, so we cannot know how many men he employed, nor what he paid them. Other bills for hauling, moving loads, installation and removal of machinery and cranes, and so on from other contractors, who would have had their own labourers are similar. Therefore, we can never observe all labourers working at St Paul's and their pay at any one time, nor in the long run.

The day rates we *can* observe, which range from 8d to 18d paid to 'labourers' there, are much lower than those found in other wage series. Boulton found the modal day rate for labourers climbed from 20d per day in 1676 to through 25 and up to 26d a day in the first decade of the 1700s, to 24d a day in 1710. Allen shows a rate of 20d a day through the 1670s to 24d a day in the 1690s falling to 22d a day 1700–1710. The largest number of observations by far in the St Paul's books were for men

paid 16d–18d. The St Paul's rates were paid directly to men, whereas the other figures come from sources which recorded what contractors were charging men out at. The close relationship to the rate paid by the contractor over 1700–1709 and the work descriptions imply that 17–18d per day was the rate paid to men doing semi-skilled craft work and heavy haulage.

The rates for men on site who were not labourers give us an indication of the relative value of skill of the general labourers, and those assisting craft. In 1722, the cathedral paid three disabled men day rates for day work, at 9d, 8d, and 15d, where the rest in the team were paid 16d.[27] Watchmen at St Paul's were paid 8d–12d per night, for the 12 non-working hours on site. Overall the evidence indicates that semi-skilled men were paid 16–18d per day, (an average of 17d per day) and the unskilled were paid 8–12d.[28]

St Paul's paid up to two foremen to manage their large teams at a rate of 24d per day, whilst the best paid labourer in the contractor's day book is one man paid 20d a day. In a dispute with the chief carpenter in 1710, the commissioners found that some of the carpenter's men, who were charged to the Cathedral at 18d a day, had not been paid this and were 'not worth 12d.'[29] The predominant rates for labourers paid directly by the Cathedral and by the contractors are given in Table 6.1.

The St Paul's records illustrate that labourers at work on large building sites in the late seventeenth century and early eighteenth century were paid various day rates depending on skill, experience and strength. The semi-skilled labourers whose job was to support and assist skilled craftsmen earned more, up to 50% more than unskilled men.

Table 6.1 Day rates recorded paid to labourers and unskilled men at St Paul's Cathedral, by contractors and the clerk of works (Cathedral) directly. 1675–1725

	1675–1700	1700–1725
Labourers working for mason contractors		18d
Unskilled men working for contractors		10–12d
Labourers working for the Cathedral	16–18d	16–18d
Unskilled men working for the Cathedral	8–12d	8–12d
Watchmen	8d per night	12d per night

Source: TNA C106/145, LMA CLC/313/B/I/25473 no. 10–56

Sites Under the Control of the Office of the King's Works

Whilst the various account books discussed in the section on St Paul's indicate the lower rates of pay were common practice over decades, there were many more sites active throughout this period. Sadly, building accounts with such level of detail are not available for most. The records of the Office of the King's Works, which contracted all work for the Crown in this period, show that other sites managed by the Office worked in some similar ways, but only at St Paul's are there records of direct payments to day labourers. At Westminster Abbey, for instance, for 1712–1719 there are only records of the total number of days that a labourer's team worked. Elsewhere labourers were accounted for by the day but the bills paid to contractors after 1660.[30] In the 1680s accounts show a distinction between mazerscowers, who were specialist heavy clearers, and labourers in contractors bills, with a 10–30% premium for the mazerscowers.[31] A century later William Meredith (who contracted paving and labouring services to the Crown) charged out up to 900 labourers days per month at various sites around London. In March 1779, 716 labourer days were charged at 22d per man per day. The men probably got 18–20d.[32]

The construction of Westminster Bridge, the first new bridge on the Thames since the thirteenth century, was a very large and important contract managed by the Office.[33] The mason contractors for the vast piers and stonework were Andrews Jelfe and Samuel Tufnell, whose contracts were worth in excess of £150,000. The carpenter, responsible for the centring and the caissons, was William Etheridge. Etheridge's men were charged out by the day, but most of Jelfe & Tuffnells' bills are for task work and so do not show labour costs. When labour costs were detailed however, the men were accounted for by tide, not by day, and bills show many more men on site than those who could be defined as 'craft' or 'labour'. Many roles were lesser skilled. Among the bills in 1743 and 1744, 'labourers' were charged out at 24d per day, but diggers and watchmen were charged out at 18d a day.[34] In 1744 Sam Pries 'paid two men taking up one of the floats adrift and looking after it two days 2s 6d', implying a day rate of 6d–7d per man for utterly unskilled work.[35] Day

rates are not given for Richard Halliwell who was paid between £28 and £33 per month through 1738 for a contract for 'three horses and a man driving piles with harnesses'. Any site required carriers, carters' men, porters, messengers, none of whom turn up in accounts of 'day rates'. The Westminster Bridge accounts demonstrate that payment by the day was not the only form of pay for the lower skilled man. This was also the case at one of the city's most important maintenance sites throughout the eighteenth century: London Bridge.

Labourers at London Bridge 1660–1785

The Bridge House was responsible for all construction and maintenance contracts at London Bridge. Until modification in the mid-eighteenth century to remove piers and the housing on it, London Bridge was 'falling down', and accounts show that masons, carpenters, and others were paid throughout the year to maintain and repair the structure.[36] There are payment records for them including their bills for labourers hired to assist or work for them, in the Bridge House estate archives.[37] They can be considered a long-run series for maintenance work on an important city's institution.

At Bridge House only a small number of people were contracted, paid, or accounted for by the day. The records of Bridge House give weekly amounts paid out to regular contractors for labour charges for masons, land carpenters, (those who carried out carpentry on the bridge itself), tide carpenters (those who carried out carpentry on the water), labourers, watchmen, and shootsmen.[38] Contractor's weekly bills were received and paid by the Bridge master. There are sporadic bricklayer's bills. In some periods, there are bills from scavengers and others. The Bridge accounts show many different types of pay: day rates, tide rates, and piece rates, as well as salaries appear in the Bridge House books. The glaziers, scavengers, gravellers, and Smiths bills are all itemized by piece, but for building craftsmen and construction workers, the most notable form of pay is the tide rate.

Those who were charged out on day rates were the contractors, their apprentices, and their foremen. Others were paid by combination of tides

and days, and most workers were *only* paid by the tide.[39] Although the records at Bridge House have this confusing tide/days aspect, which may be what led to them being excluded from other studies, they also provide us with long-run pay records for substantial numbers of people at many skill levels.

The Bridge retained two house labourers throughout the period under review. They worked for the purveyor, and their pay was accounted for in the purveyors bill each week at 7s a week for a 6-day week, implying a day rate of 14d if the purveyor did not take any margin on this.[40] Watchmen were accounted at the same rate in the same way.

In the records for the latter part of the seventeenth century, mason and carpenters' contractors' bills do not use the term 'labourers'; there are, however, lots of men listed as paid 18d or less per day. In records from the 1720s onwards, however, a significant group of men emerges who were never paid day rates. These were members of the Tide Carpenter's team described as 'gin men'. The Tide Carpenter was responsible for work on the water, essentially maintaining the wooden starlings that protected the masonry piers of the thirteenth-century bridge. Tides were a natural unit of time and account at the Bridge. For instance, at low tide the masonry around the starlings was accessible, at high tide the higher masonry above could be worked from the water. Tide work was limited by the season and the tidal clock.

The Port of London Authority helpfully gives tidal times for the London Bridge area for days throughout the year.[41] Observing their tables it can be seen that it would be virtually impossible to work two low or two high tides in one 12-hour working day. The maximum tides that could be worked within a working day of 6 am to 6 pm in one week are seven, of course more tides could be managed if an 18-hour day is considered, or if no assumptions about the parameters of the working day are made. Indeed, it is useful to suspend assumption about working hours as the maximum number of tides worked in any week observed in the Bridge House books 1720–1760 is 12 (in summer).

The Tide Carpenter in the early years of the eighteenth century was Jeremy Bowers. In 1722, his chief carpenter, Bartholomew Sparruck, purchased the position for £322, and his family held it until 1757.

Sparruck's weekly bills for labour are available for some of the 1720s, some of the 1730s, and consistently from 1745. His team consisted of a senior carpenter, two apprentices, several tidesmen carpenters, two or more labourers, and two teams of ten 'gin men'. The gin men's work was to 'wrought the gin', or maintain the water wheels (engine) which pumped water to the city and Southwark. In the call books, they are referred to as labourers. 'Gin men did not receive day rates but were charged to the Bridgemaster at 9d a tide until the 1730s and 12d a tide thereafter. The numbers of tides worked, or billed for, per week varied, from up to 12 in the summer weeks to as few as three or four in winter months. Figure 6.2 shows the total number of tides billed for the gin men per week for the years 1735–1736. The average number per week is 7.6. The figures show a typical seasonal distribution, with some very high numbers of tides worked per week in summer and much lower numbers in winter.

Assuming this is a representative pattern of tides, this gave the 'gin men' an equivalent weekly pay of 5s 3d, or assuming 6 working days which was the constant norm at Bridge house until the 1780s, 10.5d per day until the early 1730s, and approximately 14d per day thereafter. However, 1735–1736 was actually quite a good year and in the long run there is much more variability and some complete breaks in 'gin work. For instance, for the three years 1745–1748, the average no. of tides worked per week was just 6.16. (Fig. 6.3). At a shilling per tide per man this means they took home no more than 6 shillings a week. Presumably they had other work, but it must have fitted around the tide schedule.

There were 20 regular gin men throughout the 1740s and early 1750s. Their regular names in the books strongly suggest that they had an employment relationship at the Bridge, and the nature and hours of the work suggest it may have been their main source of income. Obviously, men earning such low rates as found here must have been available for other work, and it's likely that casual work on the river, with lightermen, for instance, may have taken up the slack. We have no way of confirming this, nor knowing what it was worth however, and so no way of estimating a composite income. By the late 1750s, there were up to four teams

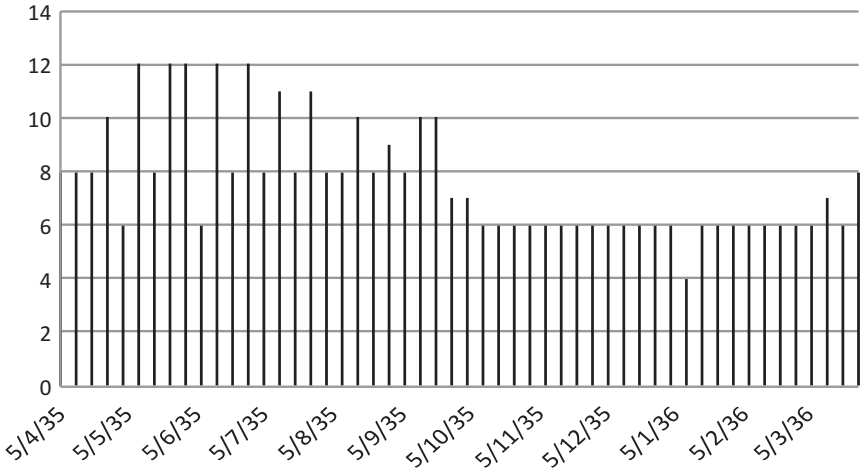

Fig. 6.2 No. of tides worked per week by 'gin men'. London Bridge April 1735–March 1736. Average = 7.6. (Source: London Metropolitan Archive CLA/007/FN/05/61)

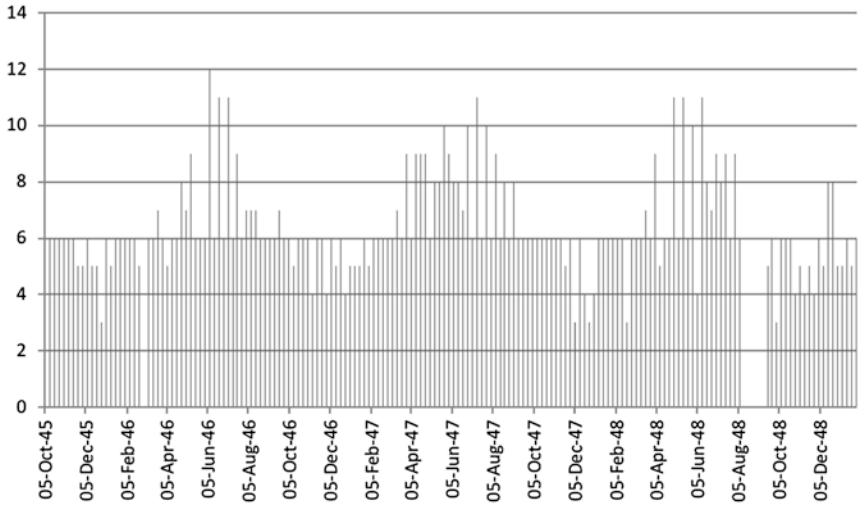

Fig. 6.3 No. of tides worked per week by 'gin men' at London Bridge 1745–1748, showing seasonal peaks, and break in work September 1748. (Source: London Metropolitan Archive CLA/007/FN/04/01)

Table 6.2 Tide carpenters gin men teams 12 April 1754–3 April 1755

	Team 1	Team 2	Team 3	Team 4
Average no. of tides worked per week	3.9	2.2	1.7	1.2
Total no. of tides worked	202	84	41	6

Source: CLA/007/FN/04/04
Each man was paid 1s a tide

of gin men, but only one team working at capacity. Table 6.2 shows the average number of tides worked per team in the 1754–1755 shows that some men must have had other sources of income because six tides a week from the Bridge were far from guaranteed.

However, the gin men were not the only ones with low pay at the Bridge. The Land Carpenters bills from 1730 show a man called Elice Hedges who was paid 9d a tide and paid solely by the tide.[42] William Lesow's Mason's bills from the mid-1730s show a regularly employed man, Edward Clarke, paid between two and four shillings a week for tides only at 5d a tide.[43]

Bridge House records show evidence of the type of worker we have traditionally considered 'labourer', that assisting craftsmen also. The contractor who succeeded Lesow was Joseph Kinleside who charged out labourers assisting masons at 24d per day, but not on a regular basis. Regular house labourers also appear in the books at 9s a week, the same pay as watchmen through the 1750s.

We cannot discern evidence of a 'brawn premium' at London Bridge, and this might be related to the fact that it was a maintenance site rather than new build, so fewer large loads were required to be moved around. However, as at St. Paul's there is clear evidence of more than one level of skill and pay below craftsmen, and that those levels are dramatically lower than the current labourers 'wage series'. The records highlight two features of construction pay in the eighteenth century not found in the established literature; the low nominal levels of pay and the large numbers of men who did not receive day rates. Bridge House indicates that perhaps only an elite set of workers were paid day rates. A significant group worked for shifts that paid less throughout the eighteenth century, and with less predictability of regularity of work than day rates.

Implications

This chapter has shown that the nomenclature of 'labourer' has been misleading for wage data living standards calculations for urban construction workers. Although many historians have understood the distinctions and variations in the nomenclature, the categorization of 'labourer' has not been understood by those who use the wage data to calculate welfare. The labourers which were recorded in institutional accounts and thus existing series were those assisting craftsmen, who were *semi-skilled*, and those who had superior strength and could do hard load shifting work. They enjoyed a semi-skilled premium, and a sort of *brawn* premium, yet the strong evidence is that the pay earned by such semi-skilled men was 20–30% below current estimates. The pay of *unskilled* men in London throughout this period was significantly lower, in annual income terms about half what Allen estimates, and similar to the national average that Clark calculates. More work needs to be done to calculate what this means for annual incomes, because one aspect of unskilled work that has been highlighted by the cases examined here is that it was less 'regular' than weekly or day pay, and perhaps more unpredictable.

As discussed at the outset, older literature has always stressed non-pecuniary aspects of early modern wage earning. Some of these were about embezzlement and perquisite and some of these about food and drink. No evidence of either being given to labourers has been found in the course of this research. Materials were far too valuable to allow men to pilfer at sites such as St Paul's, and beer was only ever stipulated in bills that refer to particularly long or night work, and then in relation to craftsmen, not to labourers. If anything was given, it was not significant enough to be accounted for by these very parsimonious institutions, and so it probably wasn't enough to improve the standard of living of the working men either. A great deal of the evidence presented here shows that the working status of unskilled workers was more precarious than previously understood, but it's important to be clear that there is no record that this was compensated for in other 'non pecuniary' ways.

The assertions in this chapter make something of a nonsense of the practice of calculating a 'skill premium' by comparing labourers and craftsmen's

day rates, and indeed this has always been an implication of Woodward's finding that labourers and craftsmen operated in different markets. The wages found in this research suggest a much wider skill premium than previously accepted, depending on one's definition of skill.[44] At St Paul's, for instance, the Cathedral was willing to pay a premium of 50% over unskilled men for semi-skilled ones, and multiples between 1.8:1 and 2.5:1 for craftsmen over this. Foremen and specialist skill commanded a premium of in excess of 3:1 over unskilled workers. Whether these figures change our understanding of 'sound institutions' and working 'capital markets' depend on whether we think building day rates are representative of capital labour relationships as defined by modern macroeconomic principles.[45] Our understanding of these relationships for the early modern period needs more research.

Even without revisions to the length of the working year, the implications of such a dramatic difference in money wages compared to previous estimates for the overall standards of living in London are dependent on some aspects of the London economy that are not sufficiently researched. We have no truly accurate numbers for unskilled workers. Boulton estimated that, of the London population at this time, building money wages affected 10–13% of the London population in the late seventeenth century, and that 4–5% of the population were labourers.[46] This chapter has not made any claims about the numbers, however, so assuming the composition is the same as Allen understood in 2009, the new wages do affect our understanding of London's comparative factor prices in the context of the divergence in wages and prices in Europe before industrialization.

As Fig. 6.4 shows, if London's unskilled wage is reduced by just 25%, its 'high wage' characteristics are no longer discernible in context of other European cities. Antwerp and Amsterdam had different accounting methods, and indeed, Amsterdam wage series include both assistants and 'unskilled' men.[47] We presently have no reason to revise estimates for their wages downwards, particularly since they were gathered from less skilled sites than Westminster Abbey and Greenwich Hospital. London's revised real wage figures show that living standards were still sufficiently high to be considered as developed as cities in the Low Countries. Whether the wage was sufficiently dear to induce labour saving innovation is much less clear however (Table 6.3).

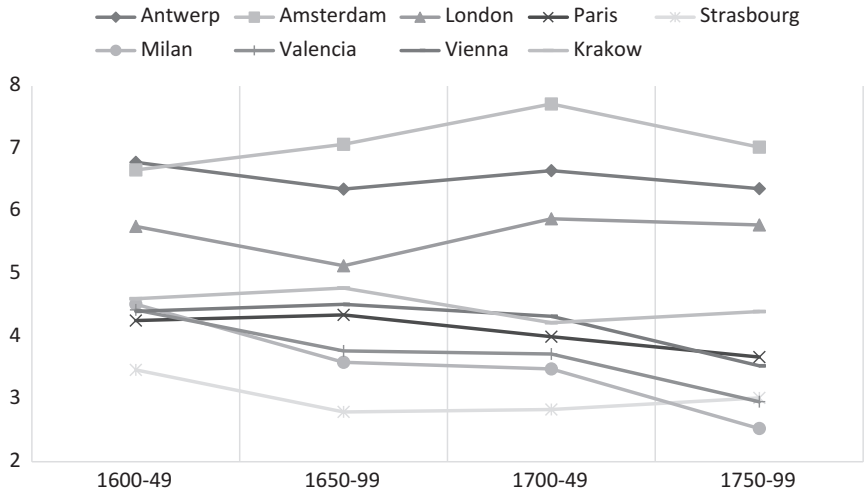

Fig. 6.4 Real wage comparisons, Labourers, London and European cities 1600–1800 with London nominal silver wages reduced by 25%, g/Ag. per day on the vertical axis and a 50 year moving average on the horizontal axis. (Source: https://www.nuffield.ox.ac.uk/media/2138/labourersxls.xls with London figures deflated)

Table 6.3 London, 1750, g./Ag

London 1750	Nominal wage—grams of silver per day	Consumer price index	Real wage	Welfare ratio
Allen 'labourers'	12.06	1.31	9.2	1.8
Unskilled −50%	6.3	1.31	4.6	0.9

Wages as in Allen (2009)

The new figures are much easier to square with a large and more varied literature about living standards in London, such as that of George, Dobson, and indeed Leonard Schwarz himself, who wrote of the London eighteenth-century labour market as typified by a flexible and skilled workforce who possibly had experience and knowledge of more than one trade and who were eager to take up new work readily.[48] Such literature has always stressed the inequality and precariousness of labour and skill in London, which the 'high wage' economy was at odds with. The aver-

age unskilled man in London in the mid-eighteenth century could not afford the respectable basket of goods, even with 250 days a year of work.

Notes

1. Phelps Brown, Hopkins, 'Seven Centuries of Building Wages', pp. 195–206.
2. For a summary of the discussions of the significance of the money wage see Boulton 'Wage earning in Seventeenth Century London', pp. 269–71, Woodward, *Men at Work*.
3. Allen *The British Industrial Revolution in Global Perspective*, pp. 39–45.
4. Stephenson, "Real' wages? Contractors work and pay' pp. 106–132.
5. Rogers, *A History of Agriculture and Prices in England*.
6. Bowley, *Wages in the United Kingdom*, pp. 59–60.
7. Gilboy, *Wages in Eighteenth Century England*.
8. Schwarz, 'The Standard of Living in the Long Run', pp. 24–41.
9. Rappaport, *Worlds within worlds*, pp. 128–9.
10. Allen 'the Great Divergence' Table 1. For further information and data downloads, see https://www.nuffield.ox.ac.uk/people/sites/allen-research-pages.
11. Boulton, Wage earning in Seventeenth Century London, p. 269.
12. Burnette, *Gender Work & Wages* p. 210.
13. Woodward, *Men at Work*, p. 94.
14. Ibid., p. 95.
15. Ibid., p. 100.
16. Ibid., p. 108.
17. See Select Committee Report on Labourer's Wages, House of Commons, 1824. Evidence pp. 11–61, esp. 13, 15, 31, 54.
18. Clark, The Condition of the Working Class. pp. 1323, Allen, *The British Industrial Revolution* pp. 39–45, 45, Van Zanden, 'The Skill Premium and the Great Divergence'. pp. 122, 128.
19. Clark, 'The Condition of the Working Class', pp. 1321, 1334–5.
20. Allen, 'The Great Divergence' pp. 411–47; Allen, *The British Industrial Revolution in Global Perspective;* Allen, 'Prices and Wages in London & Southern England, 1259–1914', S. Broadberry and B. Gupta, 'The Early Modern Great Divergence' pp. 2–31, Broadberry et al., *British Economic Growth 1270–1870;* Clark, 'The Condition of the Working Class',

Clark, 'England, Prices and Wages since 13th Century' Van Zanden, 'Wages and the Standard of Living', pp. 175–97, Van Zanden, 'The Skill Premium and the Great Divergence'.

21. Allen uses a 250-day work year, Clark a 300-day work year. For a full explanation of a day rate in the building trades see Campbell, 'The Finances of the Carpenter in England' pp. 313–46.
22. Allen, *The British Industrial Revolution*, pp. 45, 43.
23. For an explanation of types of work contract see Campbell, 'The Finances of the Carpenter in England' pp. 313–46.
24. LMA CLC/313/B/I/25473 10 – 42.
25. CLC/313/B/I /25473 33 p. 68.
26. LMA CLC/313/I/B/0034/25473/12.
27. Wren Society Vol. XV, Building accounts June 1719 to December 1722, p. 225.
28. Strangely the very low day rates show no change form winter to summer, unlike the set labourers wages.
29. Wren Society, Vol. XVI. part III 'Frauds and Abuses' pp. 109–113.
30. See TNA WORK 5/1.
31. TNA WORK 5/ 34, 35, 36 37.
32. TNA WORK 5/67.
33. A wooden Bridge at Putney was erected in 1729.
34. Full records at TNA WORK 6/46.
35. Work 6/46 pp. 39, 41.
36. For an account of the organization of Bridge House see Latham, 'The London Bridge Improvement Act of 1756'.
37. Held at London Metropolitan Archives.
38. Shootsmen managed the dangerous task of getting boats through the piers of the Bridge.
39. "Rates by the hour, complicated calculations of overtime and Sunday working are all found in such official records", Boulton 'Wage Labour' p. 274.
40. CLA/007/FN/03/019.
41. http://www.pla.co.uk/assets/towerq22015.pdf give tables for London Bridge Pier for 2015.
42. CLA/007/FN/04/019.
43. COL/CC/BHC/10/006.
44. See Van Zanden, 'The Skill Premium and the Great Divergence'.
45. Ibid., pp. 121–122.

46. Boulton, 'Wage Labour', p. 271.
47. Nusteling, *Welvaart En Werkgelegenheid in Amsterdam, 1540–1860*. p. 252.
48. Schwarz, *London in the Age of Industrialisation*, pp. 11–30 Dobson, *Masters and Journeymen*, George, *London Life in the XVIIIth Century*.

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7

What Is a Money Wage? Measuring the Earnings of Agricultural Labourers in Early Modern England

Craig Muldrew

In recent years, a body of literature has expanded which gathers data of male wage payments expressed in monetary amounts in different areas of the world between the fifteenth and eighteenth centuries, and then estimates the potential purchasing power by number of days worked compared to relevant price data for basic food and necessities.[1] The purpose of this is the very laudable attempt to compare standards of living in different places as a means of broadening the scope of the great divergence argument initially put forward by Kenneth Pomeranz. He argued that living standards in the lower Yangtze delta and western Europe were similar before the mechanised industrialisation which occurred in the nineteenth century.[2] Often such comparisons are also made by turning wages and prices into silver equivalents, arguing that since silver was the basis for many world currencies at the time, and had an international market value this can provide some sense of price parity. Such real wage calculations have generally been derived from an economics literature which takes money as a non-problematic, relatively frictionless, means of

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meeting supply and demand. However, economists such as Keynes and Joseph Schumpeter were very conscious that money was something whose creation and use were both social and political.[3] Since the financial crisis it has been increasingly hard to believe that money or credit can be created unproblematically, and a recent report by the Bank of England has argued that money is created by banks in various ways independently of needs as represented only by transactions.[4]

Much of my own work has explored how money and credit worked together in early modern England. England, like the rest of Europe and most of Asia, based its monetary system on a bimetallic coinage of gold and silver whose value was maintained by relative scarcity. This scarcity meant that most transactions were done on credit measured in money of account. Cash was only used in transactions where trust and its legal institutional enforcement were lacking to some extent. Such transactions could include overseas trade with strangers, for instance, but all over Europe and Asia the most voluminous type of transaction took the form of wage payments where coins were required because of weaker trust. By definition, the poor lacked trust since their earnings were often precarious. But few European mints produced anywhere near enough small silver coins to meet demand because by the sixteenth century they were very small and costly to produce compared to larger denominations.[5] Recently a group of monetary historians led by Akinoba Kuroda and including Jan Lucassen and myself have been working to develop a more contextualised social theory of money which examines how the use of coins made of precious metal work together with other forms of fiat currency and credit in sets of local or national and international institutions to create a circulating value.[6] This work represents an attempt to argue for the importance of wages in the history of monetisation by developing previous work done on their socially embedded nature in a volume edited by Leonard Schwarz and Peter Scholliers.[7] Most recently, Lucassen has put forward the theory of 'deep monetarization' which is defined as 'a substantial (per capita equal to between five and ten times the prevailing hourly wage) stock of currencies in circulation, consisting of denominations equalling the value of one hour or less of waged work. This stock is primarily conceived as a function of the demand for small-denomination currencies needed for the spending of the common man.'[8]

However, almost all countries or areas which produced enough coins to achieve the circulation needed had to rely on a fiat copper coinage because of the shortage of silver. In such economies, this meant that there was a separate form of coinage used exclusively by wage earners and other poor families which was not useful for larger transactions. Copper also suffered from the problem that it was quite cheap to counterfeit so required more policing. England, though, was a state which, for the vast majority of the early modern period, continued to reject the use of copper coins because of the problems of counterfeiting. Farthings were produced in various years, and many shopkeepers and towns produced fiat lead tokens instead of small change which had a very circumscribed geographical circulation.[9] But, especially in the eighteenth century, the country which probably had the greatest percentage of its population employed in waged agricultural labour as well as industrial waged work had very little physical money to pay them![10]

This is why, what I will term the social wage, was so important. The key to this, like much else in the early modern world, was negotiation which makes real wage comparison more difficult, but certainly not impossible. This was done through various methods such as the provision of food, payment in kind, or perquisites. The monetary amount of the day wage was a fulcrum around which such things were measured, but it could not yet be a 'cash nexus' for the simple reason that there was not enough cash. Of course, negotiation is a relation in which power played an important role, and many contemporary commentators in the early modern period believed that labourers should only be paid as much as they needed to keep themselves alive, but others such as Adam Smith saw rising earnings as the way forward for economic growth by creating popular consumption. What labourers could try to obtain from their employers very much depended on local demand for their skills as well as the local cost of living. In general, over the early modern period, the money wage rates of day labourers went up more slowly than food prices while population was growing until *c.*1650, and then more quickly than food in the following 50 years. After that, when food prices rose extremely rapidly in the 1780s and 1790s wage rates went up much more rapidly than before, as did poor law payments. Although wages did not match

the rise in food prices, the rapid rise was significant and heralded Britain's break from Malthusian constrains on population growth.[11]

But such long-term trends obscure the vital fact that food prices were very elastic from year to year according to the harvest, while day wages were what is termed 'sticky'. That is, they remained at a round figure in pence per day for long periods of time before shifting upwards. Since labourers had no bank accounts, other means were needed to overcome such fluctuations and the accounts of the yeoman farmers Robert Loader and Henry Best provide good examples of how workers negotiated ways to go beyond the normal day or piece wages in pence to deal with the price of food.[12] In terms of what a wage was spent on throughout the period the majority was on food, and this was the main theme of my book *Food, Energy and the Creation of Industriousness: Work and Material Culture in Agrarian England, 1550–1780*.[13] The nature of food was the basis of the standard of living for the working poor and there is much evident that many employers looked upon its provision as necessary to obtain productivity for the workers they hired. Labourers also needed to purchase clothing and to rent and furnish cottages and save for basic medical costs for childbirth and sickness, but if we want to think about standards of living in terms of well-being and enjoyment, the availability of tasty food was of paramount importance together with basic shelter. The remainder of this chapter will focus on male agricultural wages, in the context of family earnings, to demonstrate how they were constructed beyond simple monetary values.

Work on the question of standards of living has focused on the best way to construct real wage series to track change over time. This is typically done by looking at evidence of daily food consumption, together with the cost of clothes, fuel, rent and other household costs, to create a 'typical' 'basket of consumables' bought over the course of a year, for a family of a certain size. Prices of these goods are examined to work out their changing cost for different years. Evidence of monetary wage payments is then collated to form a time series, and the real wage is calculated to be the percentage of the basket of consumables which could be bought by a single family in a year. Such real wage series are valuable in that they provide a rough index of very long-term change over time, and they also provide a way of comparing living standards in different

countries or areas of the world. But, the numerical abstraction of such series often masks the difficulties in collecting evidence robust enough to be used in comparative terms, given the sweeping changes which had occurred in England since 1209, and the differences which existed between areas in Europe compared to early modern China or the Ottoman Empire or India. The adult male wage was only one aspect of the way in which a family earned wealth, as has been pointed out in much recent work.[14] In the most comprehensive set of contemporary English budgets from the period, those made by David Davies and Sir Frederick Eden in the late eighteenth century, the earnings of a household head, in the majority of cases, constituted less than two-thirds of household income, and this was after the introduction of spinning machinery radically diminished the most significant employment for women.[15] Also, basing consumption on a sample of small diets can obscure the tremendous geographical and temporal changes in the consumption of food and other goods, even within England. This was recognised by Alex Gibson and Christopher Smout as well as Donald Woodward who chose not to construct single real wage series because of the differences in diet which they discovered by examining a wide variety of sources.[16]

The first attempt to create a long-term series of changing real wages for England was the work of Henry Phelps Brown and Sheila V. Hopkins in their two articles 'Seven Centuries of Building Wages' and 'Seven Centuries of the Prices of Consumables, Compared with Builders' Wage–rates' published in the journal *Economica* in 1955 and 1956.[17] In these articles, they used builders' wages collected largely from southern England, together with a large dataset of prices collected previously in the nineteenth and early twentieth century by historians such as James Thorold Rogers and William Beveridge.[18] Builder's wages were used because records of long-lasting institutions such as colleges provided the best longitudinal data, but Phelps Brown and Hopkins tracked changing nominal agricultural wages over time as well.

In order to measure a historical standard of living all the way from 1260 to 1954, Phelps Brown and Hopkins attempted to construct four baskets of consumables for 1275, 1500, 1725 and 1950, to introduce a rough measure of change over time. But the evidence they had of both diet and the consumption of household goods before the nineteenth

century was very limited—consisting of only one medieval account book of two priests, and David Davies and Frederick Eden's budgets for poor families during the hard years of the late eighteenth century. Since they were not interested in actual consumption, they did not investigate the accuracy of what building workers might actually have been consuming. They were more interested in having a reasonable standard measure which could track the changing prices of comparable units. However, their real wage series became a seminal tool in explaining socio-economic change in the early modern period. Figure 3, from their second article, famously showed that real wages, owing to the price inflation of the sixteenth century, fell to a nadir during the run of bad harvests in the late 1590s.[19] Prices of food were shown to have risen by over six times between 1550 and 1650, while nominal money wages only rose by 2.5 times in the same period. In contrast, real wages were at their highest when food prices and population were low in the fifteenth century. After 1650, gradually rising money wages, together with falling food prices, led to slowly rising real wages.[20] These figures were puzzling because their work showed that building workers would have been better off in the fifteenth century, which experienced a long trade depression and market contraction. In addition, they showed that it would have been impossible for a family to survive on just the husband's wages which were paid at this time.

Recently, a new long-term series of farm labourers' wages has been constructed by Gregory Clark from 1209 to 1869. Clark looked at a much larger sample of farm labourers' wages from all over England than Phelps Brown and Hopkins, who based their series on building labourers' wages from the south.[21] For his price series, Clark relied on those collected by William Beveridge with additions from his own new research. However, he based his basket of consumables on a single example that was constructed by Sarah Horrell based on budgetary evidence from 1787 to 1796. In order to trace change over time, he expressed the composition of different components proportionally based on changing prices of different goods.[22] In comparison to Phelps Brown and Hopkins, Clark's data shows that the fall in real wages from the mid-fifteenth century to 1600 was only of a degree of about 50%, rather than 60%, and, much

more surprisingly, that real wages rose much less over the course of the early eighteenth century.[23] The main reason for the latter difference is that in Clark's sample nominal farm wages from 1660 to 1760 were significantly lower than those used by Phelps Brown and Hopkins. Clark used examples of winter wages, when they were at their lowest, from numerous farm accounts drawn from all over England, as well as from Arthur Young's various tours. He used winter wages as a constant measure, and he also chose examples which were likely to be for wages without board.[24]

Table 7.1 shows the differences between Phelps Brown and Hopkins and Clark's measurements of changes in nominal money wages over time. Clark's figures are precise averages of many different samples. In reality, wages were paid in round figures of pence per day or shillings and pence per week, and Phelps Brown and Hopkins have given the most common round figures. Of the two series Clark's contains much more data drawn from more geographically diverse sources. But, when using an average we must remember that wages paid could vary between villages only miles apart. In Howden, south east Yorkshire, winter wages were 1s. a day in the 1760s, whereas in Risby just on the other side of the Ouse they were 7s. a week or 16.8 d. a day, while 30 miles further east on the coast at Holderness they were as much as 8s. 6d. or 20.4d. a day. According to Young, these higher wages were due to additional need for labour making drains and enclosures as well as building turnpike roads.[25] Thus, the experience of labouring families in different parishes or manors could be significantly different.

Table 7.1 Change in day wages rates over time as estimated by Phelps Brown and Hopkins and Gregory Clark[a]

Dates	Wages in pence per day	
	Phelps Brown and Hopkins	Clark
1550–1580	6–8	6.5–7.5
1580–1626	8	7.5–8
1639–1693	12	8–10
1701–1730	14–15	10
1730–1773	16	10–12
1776–1798	19–22	12-15

[a]Clark, (2007), 'Long March of History', pp. 131–4 (These are abstracted from his precise figures.); Phelps Brown and Hopkins, *A Perspective of Wages and Prices*, pp. 28–31

Another problem with the measurement of real wages over time is that they require a constant basket of consumables to compare to the money wage. But, in reality, what the poor ate varied considerably by time and place. For instance, in the north and in Cornwall oats formed a much higher percentage of the diet than elsewhere, and oats were much cheaper per calorie than wheat. As a result, money wages were often lower in the north, especially in the early eighteenth century.[26] This is the main reason why Clark's average nominal wages are lower for the eighteenth century, but when calculating his real wage series a different oat based diet was not used.[27] Similarly beer formed a much higher percentage of labourers' diets than Clark's estimate of 4.7%, and barley was also 56% of the cost of wheat in the same period.[28]

An even more serious problem is that, in most farm accounts, it is usually impossible to tell what sort of food perquisites might have been given in addition to the money wage. Monetary accounts of wages were generally kept in wage or general disbursement books. One needs to look at kitchen accounts to see if produce from a farm was being made into bread, meat and beer in enough quantities to feed labourers. This means that using farm wages as a measure of real wages over time is much more difficult than using building wages where feeding workers was less common.[29] Simple money wages do not give an accurate idea of standards of living. By the 1760s, Arthur Young included beer and food during the 10–12 weeks of summer work, but rarely were wages paid with food provided in winter by that time. Gregory Clark concluded from his sample of wage accounts that by the late seventeenth century provision of food was rare in the south but continued to be normal in the north into the nineteenth century, but he did not use kitchen accounts.[30] However, given the complexity of how wages were negotiated, counter examples can easily be found. Francis Hamilton provided food at work on her Bishop's Lidyard farm in the eighteenth century, as did Nathaniel Brewer of Over Stowey, Somerset, in 1713.[31] Clark also cites an example from Cumbria where both types of wages were paid for threshing in 1732. The late eighteenth century Norfolk farmer Randall Burroughes generally paid board wages (wages without food or lodging supplied), but on occasion provided board or dinner.[32]

For an adult labourer with children old enough to be employed themselves, a hiring with meat and drink would make a great deal of sense if

possible. But, for someone with small children, the lower cash wages on offer would have made it difficult to help feed his children and pay for fuel and rent, in addition to what his wife could earn. Day wages of 8d. a day with food provided, which were common in the early seventeenth century, would have provided about £10 a year to feed a family, only half of what board wages would have provided. Also, the average wage for servants older than 20, from a sample of Quarter Sessions wage assessments examined by Kussmaul, was £5 15s., although Bacon's adult servants in the 1590s only earned about £2 a year. Two married servants in husbandry hired by Henry Best in 1617 were paid £3 and £1 6s. 8d. a year, but they were still in employment in 1622 when their wages went up to £6 and £5 with house rent.[33] On such wages children could only have been supported if the farmer helped out by providing a cottage or selling food cheaply as described below, or if a labourer had savings from earlier employment.

But, even for labourers on board wages there is much evidence that the provision of the beer or cider at work was a normal part of wages. The value of such provision in the early to mid-eighteenth century could potentially vary from 2d. to 10d. a day if a gallon of strong beer was supplied. If we were to add the value of beer provided at work during the winter to wages, it would add £2 a year for every 2d. of beer supplied per day. In Young's wage data beer was always included during the summer, and also listed as being included with winter wages in about a third of his examples.[34] However, there is evidence which suggests that provision of beer during the winter was more extensive than suggested by Young.[35] Although Frederick Eden generally looked on beer favourably as a source of nutrition, when describing diets in Gloucestershire he complained that:

> a very pernicious custom takes place in this county, as in many others, of allowing labourers an enormous quantity of liquor. That the more they receive in liquor the less they receive in wages, there can be no doubt: in many parts of the county the labourer receives almost as much liquor as is equal to his day's pay; and is thus encouraged in a practice which is not more ruinous to his health, than prejudicial to his family.[36]

However, none of the examples of wages given for Gloucestershire by Young included beer or cider, indicating that not every farmer reported the practice to him. Henry Best noted how it was his practice, for labourers whom he hired without food, 'at noones to sende them, nowe and then a quart of the best beere to theyre dinners.' And Eden noted that labourers normally broke work to drink beer at 10:00 and 4:00.[37] Wage bills for labourers employed by different counties for work on county bridges, buildings and roads frequently itemise 'drink to the labourers.'[38] In the late eighteenth century, Randall Burroughes almost always noted providing beer at work in addition to his cash wages, as for instance, in July 1796 when he paid five mowers 1s 6d. and three pints of beer per day, or five days earlier when he paid 2s with 2 pints of beer per acre. This must have been strong beer as he reckoned its value at 2d. a pint, which was expensive even for the late eighteenth century.[39] At roughly the same time in Somerset, at Bishop's Lydyard farm, Francis. Hamilton paid an extra 1s. an acre for harvesting without beer or cider. It was said that farms there that produced no cider found it hard to obtain enough day labour.[40] Such supply is also demonstrated by the finding of Mark Overton *et al.* that the number of farmer's inventories with brewing equipment in Kent actually increased quite dramatically between 1650 and 1750.[41]

Another way in which day labourers could have helped to offset high food prices for their families was to either negotiate some extra payment in kind, or to purchase food off of their employers on credit, or at a price lower than the market rate.[42] The potential value of such agreements can be seen in an example described by Robert Loder. In most of the years in his account book, he boarded his servants well, providing them with meat and plenty of calories, and provided feasts for them. However, he estimated that each servant cost him about £10 5s. a year in food and drink compared to wages of between 15s. 6d. and £3, and he constantly complained that it would be cheaper to keep fewer 'unruly' servants and instead rely on wage labourers.[43] When writing up his costs and expenses for 1613, he calculated that if he only kept one maid servant, and hired his other servants at board wages, he would save £5. But, when he negotiated with his carter William Weston for board wages in 1617, he had to agree to pay £11 in money together with four bushels of wheat, three

weeks board at harvest, the keeping of Weston's hog by Loder, and shorter working days in the winter, which Loder reckoned to be worth £13 9s. 4d. He termed this 'exceeding great wages', and indeed it was little different than what a carter usually cost him with board provided.[44] It was also about 33% greater than the standard wages of 8d. a day without food would have provided. But despite his frustration at the cost of board, Loder could see no other way of getting his work done than by hiring his labourers as servants, which implies that he thought about £10 was the necessary cost of providing food and drink to run his farm efficiently and profitably. Given the extent to which he attempted to work out the cost and profit of all aspects of his farm in minute detail, there is no doubt that he was obsessed with such concerns.[45]

Even with his live-in servants Richard Cholmeley often negotiated extra payments in kind, such as the case where he supplied one of them with horse grass and five pecks of oats together with a pair of black breaches.[46] Feed for animals was a common extra supplied as part of wages. The farmer Henry Best of Elmswell of the East Riding in Yorkshire, when describing the negotiations involved in the hiring of farm servants, noted that 'some servants will condition to have soe many sheepe wintered and sommered with theire masters …we account that equall to so many eighteene pences.'[47] In 1622, he recorded paying one servant '6 *L*. in money, 8 bushells of barley, 2 bushells of oates, and a pecke of oatmeale, and a fries coate, and a stoke of strawe every weeke from Crissmass to Lady Day in Lent', and another 'to have 5 *L*. in money, and 10 sheep wintered, and the rent of his house and garth the next yeare; and I to pay for his cows cost on the Greets next somer'. At Dunster farm in Somerset, in addition to wages, labourers also received cider in the summer, the run of a pig, unlimited turf for fuel and milk in the winter.[48]

Also, in calculating total yearly earnings, we need to consider summer, and especially harvest wages and their accompanying perquisites. Another reason why Clark's average wages are lower than Phelps Brown and Hopkins's series is that, in choosing to use winter wages as a constant, he did not factor in the much higher harvest wages paid during July and August. Summer wages almost always included beer, and harvest wages came with board. Fortunately we possess a calculation of what such perquisites were worth from Thomas Batchelor's *View of the Agriculture of*

Bedfordshire, which is listed in Table 7.2.[49] During the five weeks of harvest money, wages were much higher because of the farmer's need to secure enough labour in order to make sure all the crops could be taken in. Thus, winter wages of 1s. a day could rise to 1s. 6d. a day, or even 2s. during harvest, depending on the demand for labourer in the neighbourhood. In addition to this, farmers also provided extra food, listed in Table 7.2. Bachelor also shows that extra money could be earned through carting and a wife's cooking for two to three days. In Batchelor's calculation harvest wages were 57s. in 1808, while other earnings were worth 68s. or 119% of the money wages! Also in the rest of summer, what Batchelor termed the hay harvest, extra earnings were also worth 15s, 6d.

Table 7.2 Batchelor's estimate of a labourer's earnings including harvest from 1808[a]

Average month's pay including earnest	£2	8s.	
One week finishing harvest and thatching		9s.	
Two quarts of ale a day for five weeks		15s.	
Extra ale, largess		2s.	
Small beer		1s.	10.5d
Meat, principally pork, 3.5 lbs per week at 9d. per lb (without bones)		13s.	1.5d.
Cheese 1 lb per weeks at 9d./lb		3s.	9d.
Brown bread or pudding, 1.5 lb per day		8s.	9d.
Plumbs, 1 lb for eight days, at 8d. per lb		2s.	11d.
Salt, mustard, etc., at ½ d. per day		1s.	5.5d.
Vegetables at ½ d. per day		1s.	5.5d.
Harvest home: food for the men's families, three persons each		3s.	
Cooking: a woman's work for 12 men at 2s. per day		5s.	10d.
Firing for 12 persons at 2s. per week			10d.
Wood carting		8s.	
Total harvest	*£6*	*5s.*	
Hay time, five weeks pay	£3		
One quart of ale per day		7s.	6d.
Extra ale and food for working late		6s.	
Small beer		2s.	
Total hay making	*£3*	*15s.*	
Common farming labour, 42 weeks at 9s.	£18	18s.	
Small beer and milk at 3d. per week	£1	1s.	
Extra earnings by the piece at 2s. per week for 30 weeks	£3		
Garden produce	?		
Total yearly earnings	*£32*	*19s.*	*6d.*

[a]Batchelor (1808), *General View*, p. 80

or 26% of money wages. Batchelor's estimate of earnings in 1808 was based on a winter wage rate of 1s. 6d. a day, and a harvest wage of 2s. This was after a period of inflation, but if we use an earlier example from the 1760s given by Arthur Young of 1s. a day winter wages for 42 weeks, and 1s. 6d. a day during the first 5 weeks of summer and 2s. a day during the five weeks of harvest, and then use the same percentage figures for perquisites that Batchelor estimated, then total earnings would amount to £17 17s. a year for an adult male day labourer working a full 52 weeks. However, it probably is more reasonable to subtract two weeks of winter wages for holidays and sickness which would leave £17 7s.

Measuring standards of living of only those men who earned their living by the day also omits the importance of service, as well as extra earnings from piece work. Many labourers were hired as servants in husbandry by the year, where they would receive board if they were single, and food if they were married with a family. Being hired for a year would have provided security against the potential loss of earnings for a day labourer if there was not enough work in a locality for all the labourers during the winter. Keith Wrightson and Donald Woodward have stressed the amount of work actually available in a locality would determine how many days of work might actually be available to day labourers.[50] Many families who depended on day wages might well have financed part of their expenditure during periods of under-employment by carrying heavy debt loads.

As a result of this, servants continued to form a large part of the agricultural workforce through the eighteenth century, and they were almost always provided with food and board and often clothing as well. The wages they earned were largely used for savings. The only national estimate for the number of agricultural servants was made by Arthur Young. He based this on an extrapolation of information he gathered on his visits to 250 farms in the North, and 93 farms in the East of England in the 1760s. His data is presented below in Table 7.3. Here he divided servants by sex, and also included the number of boys hired on a farm. Unfortunately, he did not provide a definition of what he meant by boy in terms of age, but presumably these would have been those boys younger than servants who would have been hired at lower wages, probably between the ages of 7–12. Presumably they were also boarded, and not casual labour, since

Table 7.3 Numbers of servants compared to day labourers in the 1760s from Arthur Young[a]

	National	Percentage of total	Percentage of men	North (250 farms)	East (93 farms)	Earnings	Percentage of earnings
Male servants	222,996	27	33	486 (28%)	205 (23%)	£3,899,639	27
Maid servants	167,247	20		268 (15%)	82 (9%)	£1,413,236	10
Boys	111,498	13	17	232 (13%)	103 (11%)	£1,070,380	7
Labourers	334,494	40	50	768 (44%)	525 (57%)	£6,160,262	42
Extra labour						£2,053,420	14
Total	836,235	100		1754	915	£14,596,937	100
Total males	668,988		100				

[a]Young (1771), *Tour Through the North of England*, IV, pp. 236–46, 355–60, 364–5; *idem.*, *Tour Through the East of England*, IV, pp. 375–8

Young did not include the labour of female agricultural workers, which was considerable in the summer months. If boys are included, the number of both male and female servants is greater than the number of labourers, with a ratio of about 1.5 servants to one labourer, and a greater percentage of servants were employed in the north. Also, since Young tended to visit larger more productive farms which would have needed to hire more labour, his sample probably overestimates the number of labourers in relation to servants.[51]

Taken together, these surveys would seem to indicate that until 1770, at least, a majority of hired farm labour of all ages, including maid servants, was still being provided by servants and not day labourers. This can be explained in part because service formed a large part of the employment life cycle, and 35% of the population was between the ages of 7 and 24. However, there were still older labourers who were also hired as servants in husbandry. Kussmaul found that 11% of servants reported in settlement examinations that they married before leaving service. In the mid-seventeenth century, Henry Best, of Elmwell Yorkshire, for example, hired some married servants who only ate in his household. In his famous table of the ranks and degrees of people in England in 1688, Gregory King classed labourers and 'out-servants' together implying that some married labourers were definitely hired as servants.

It was also very common for labourers, if the cash was not available to pay their wages, to turn them into a debt which the employer owed to the labourer. This debt could then be cancelled against a debt the labour might incur to the employer for grain or meat purchased from, or rent owed to, the farmer for whom they laboured. Cholmeley paid some labourers to carry wood with corn, beer, ale and meat as well as cash.[52] To give just one example from the many found in the accounts of the Godinton estate in Kent, in 1699 Jacob Wootton had his wages for threshing, hedging and ditching cancelled in the accounts against the rent he owed his employer for his house as well as peas, barley and oats he purchased.[53]

Thus, nominal wages were only the basis for more complex negotiable means of payment. They were meant to be the chief measure of the value of a labourer by time or task, and they remained 'sticky' because simple

pence rates for work made accounting easier, and provided a price basis by which the value of the labour could be compared. As noted above, prices of grains could vary quite dramatically from year to year, while wages rose very gradually over time, but did not vary much from year to year. For instance the building labourers' wages measured by Phelps Brown and Hopkins remained at 8d a day from 1580 to 1625, then rose to 12d. a day from 1640 to 1690, and were at 15–16d. a day from 1710 to 1770.[54] This meant that bad harvests which raised the price of bread in effect lowered labourers' wages. It was not impossible that by law wages could have been tied to food prices, as was done later with the poor law.[55] But, given the constant shortage of small change in the economy, it would have been difficult for farmers to actually find the cash to deal with the sudden rise in wages in years of bad harvests, or even over the course of higher winter prices. It would also have made accounting much more difficult given the rudimentary nature of most farmers' bookkeeping at this time, if they kept accounts at all, and also more difficult for labourers to keep track of.[56] Instead day wages should be seen in a similar light to the penny loaf. They changed slowly so that they could be calculated and added up simply, and when food prices went up they were dealt with in the myriad of ways discussed above, by selling food for labour or allowing a labourer to pasture an animal on an employer's field.

It also seems to have been the case that there was an agricultural geography of wage rates linked to the fact that the colder wetter climate of the north of England meant that oats rather than wheat were predominantly consumed in Northumberland, Yorkshire, Cumbria and Lancashire. Both oats and barley were much cheaper than wheat; the former being on average one third cheaper and the latter half the price of wheat. In 1610, the price of a quarter of oats was over three times less expensive than wheat.[57] This was due to a combination of greater demand for wheat, the higher rent of better land to grow it on and the greater cost needed to harvest it by reaping with a sickle rather than mowing with a scythe. In the north where much more oatmeal was eaten the cost of living would have been £2–3 cheaper per year. When different wage assessments are compared, the differences between assessments is much more striking than any change over time. Table 7.4 presents rates of labour for different tasks

Table 7.4 Rates of work calculated from wage assessments[a]

Task in acres per day	Wiltshire 1603	Norfolk 1610	Wiltshire 1655	Northampton-shire 1667	Middlesex c.1665	Essex 1651[b]	Essex 1661	Bedfordshire 1684	Lancashire 1725[c]	Lancashire 1725	Kent 1795	Arthur Young c.1770	Batchelor 1808[d]
Reaping and binding wheat	0.5	0.63	0.6	0.5	0.33	0.55	0.46	0.45	0.14		0.81	0.4	0.3
Mowing barley	2	1.4	2.6	0.66	1.7	1.3	1.3	2	(Shearing) 0.21		3	1.3	0.7
Mowing oats	2.5		3	0.66	1.7	1.3	1.3	2	(Shearing) 0.18		3	1.3	0.7
Harvesting beans	0.8	1	1.3		0.8	0.5	0.5	0.8	0.21		2.5	0.33	
Mowing grass	1	1.2	1.3	0.66	0.8	0.9	0.8	0.9–1.2			4.3	4 clover grass	0.7
Task in rods (16.5′) per day													
Ditching	1.2	1	1.2		1.2	0.85	0.85	0.7					
Hedging	3.5		3.5										
Fencing	0.7												
Threshing in bushels per day									Best labourers (12d. a day)	Ordinary labourers (10d. a day)			
Threshing wheat	5.6	4	4	5.3	5.3	4.4	4.4		4	3.3	5.3	4	2.6

(*continued*)

Table 7.4 (continued)

Task in acres per day	Wiltshire 1603	Norfolk 1610	Wiltshire 1655	Northampton-shire 1667	Middlesex c.1665	Essex 1651[b]	Essex 1661	Bedfordshire 1684	Lancashire 1725[c]	Lancashire 1725	Kent 1795	Arthur Young c.1770	Batchelor 1808[d]
Threshing barley	8.8	6.4	9.3	8	9.1	9.6	9.6		5.3	4.4	9.6	8	4.7
Threshing oats	8.8	8	9.3	8	9.1	9.6	9.6		8	6.7	9.6	8	3.75

[a]Putnam (1927–8), 'Northamptonshire Wage Assessments', pp. 124–34; Tingey (1898), 'An Assessment of Wages', pp. 522–7; Willan (1943), *Bedfordshire Wage Assessment,* pp. 129–37; Waterman (1928), 'New Evidence on Wage Assessments', pp. 398–408; Historical Manuscript Commission Reports (1901), no. 15, pp. 160–75; Cunningham (1929), *Growth of English Industry*, pt. 2, pp. 887–93; Eden (1797), S*tate of the Poor*, II, pp. 293, 452–53; III, pp. lxxxix–cx

[b]Both Essex wage rates also give rates for reaping barley and oats which are much slower. This suggests that reaping was practiced here rather than shearing

[c]For Lancashire the acre is said to be one of 7 yards a rod instead of 5.5, so to make the wages comparable to the other areas I have reduced then by 21%

[d]Batchelor gives his threshing costs per acre, so I have calculated the cost per bushel using the mean figures for 1810 from Turner, et al. of 21 bushels for wheat, 39 bushels for oats and 30 bushels for barley. Turner, Beckett and Afton (2001), *Farm Production in England*, pp. 129, 153, 158

from a sample of published wage assessments, calculated by dividing piece rates for each task by the published day wage. This table would seem to show that labourers in Middlesex in 1665 were able to work over twice as hard at mowing, than their counterparts in Wiltshire two years earlier, which is unlikely. Also the harvest work in Lancashire in 1725 is unfeasibly slow worked out this way. In 1725, the wages set there were only 1s. a day for reaping, whereas by the piece an acre paid 7s. implying that only 1/7 of an acre was cut in a day.[58] By comparison, in Essex in 1651, the official wage rate for a male reaper was 22d. a day without food, and the reaping, binding, stoking of an acre of wheat rye or maslin (mixed) was 3s. without food, implying that all of this could be done in 1.6 days![59] Day wages could also differ significantly from place to place depending on levels of rents and access to other entitlements. It is likely that the setting of piece rates also reflected these other concerns as well as local demand for the labour involved.

To test this, we can compare these rates to some actual examples. Henry Best thought that in 1641 a good shearer could shear ten stookes of winter corn a day, but ordinary shearers only eight a day, for which he paid 8d. a day without food, stating that the 'stookinge of Winter-corne is a man's labour and requireth …ability and toyle.' These were very low harvest wages, but were not unusual for the north. In 1615, Robert Loder paid his harvest 'taskers' the equivalent of 14d. a day in money and food.[60] Best's stookes were composed of 12 sheaves each (an armful of about one foot in diameter) of which there were 30 to a land.[61] Although the size of a land could vary, it seems to have been about 1.5 acres. If this was normal, then his good reapers were finishing half an acre in a day which is what we would expect from the majority of the wage assessments. However, Best claimed that those who were able to mow corn with a scythe could do an acre and a half in a day earning 3s. 9d., which was 5½ times what he paid his best shearers. Since mowing corn requires much more strength than reaping it these must have been very strong hard-working men.[62]

It is also possible to work out some rates of mowing hay, ditching and hoeing turnips from Randal Boroughs, although not for reaping. His workers were able to mow from 0.8 to 1.2 acres of grass a day, depending on the size of the crop. They hoed 0.17 acres of turnips a day and did

almost 25 feet of ditching. These are also close to the official rates, but the amount of work that could be achieved in a day depended very much on the nature of the crop, the soil being dug, and the wetness of the season. On one occasion, Burroughes agreed to pay his men more than he had bargained for reaping wheat, as the crop was 'remarkably thick and extremely well & clean picked.' although it is impossible to determine how fast they worked from his journal.[63]

These examples show how many variables could go into just male wage rates, adding the earnings for the work of children and wives in a family are even more complicated. Although male agricultural day wages are the most readily available source of data for measuring earnings, it has long been realised that they form only one part of a household's earning power. Women and daughters of a certain age could also work for wages in agricultural work. In addition, they span yarn, and did other tasks related to cloth manufacture, sewed, were employed as wet nurses, or washed clothes. Boys and girls could also spin yarn and work in agriculture once they reached a certain age. As Thomas Sokoll has pointed out, the concept of dependency ratios is crucial to understanding how much a household might earn.[64] A family with a greater number of children under the age when wage earning could begin (usually about seven to nine in most parts of England) would have been poorer because they had to earn enough to feed and support their small children, while the wife's earning power was reduced by the time spent looking after the young children. Thus, in the earliest years of marriage earning power was most dependant on the husband, but once the majority of children reached their teens the earning power of the household was at its maximum as the children were able to earn almost as much as the adults, and the wife had more free time. If only the father was working, and there were say three children below the age of nine, expenses would probably be about 25% less, but without the children's earnings the family would be much worse off. Feeding a small child of 4–6 probably would have cost £2–3 a year, with three ounces of meat a day and between £1 and £2 without, in the mid-eighteenth century.[65] Assuming a cost of another £1 a year for clothing, furniture and medicine means that it would cost about £21 to raise only one child to age seven. For most young labouring families, savings from a time period spent as a

servant would have been needed to begin a family to pay for this. Ann Kussmaul estimated that two servants marrying who had been in service from six to ten years could save between £27 and £60 together depending on their combined length of service and whether they were able to save half or two-thirds of their wages.[66] Thus, a period in continuous service while young was crucial to be able to afford to start a family.

The potential importance of access to common land and cow keeping to a labouring family's earning in the eighteenth century has also been stressed by Leigh Shaw Taylor and Jane Humphreys, although it is difficult to know just how many families could afford one.[67] A number of contemporary estimates from 1796 to 1801 show the revenue from butter, milk and calves of one cow were in the range of £7–9 a year, but prices were much higher by this time than previously. With rights to common land, most of this would have been profit subtracting the cost of the cow and hay in the winter. However, such rights were declining over time, and by the late eighteenth century, most authors included rent of pasture and the cost of hay, which was variously estimated at about £4 per annum.[68] Net profits from a single cow without common land were perhaps in the region of £1 10s. to £2 per annum by the early to mid-eighteenth century. Rights to wood could also be worth £1 18s. a year after the labour of cutting it was subtracted, and again if work was scarce this could be vital, and would have been something which attracted families to wood pasture districts.[69] Fuel costs in the budgets listed in Eden were normally between £1 and £2 a year; access to wood from hedges could have provided enough fuel for a family.

Because agricultural labourers were engaged in producing food for others, and possibly for themselves, there was much scope for non-cash exchange. For building, transportation and industrial labourers, especially those in towns, the scope for perquisites and exchanges would have been quite different, probably involving goods they manufactured. We know that sailors in England's coastal coal trade could be paid with small amounts of their own coal which they could sell, and overseas sailors in merchantmen could do the same. In addition, the case of dockyard workers having access to food and wood chips is well known because of the campaign to end such 'uneconomic' perks in the late eighteenth century.[70] But understanding the degree to which such facts might have been involved in

other parts of the world is key to making proper comparisons. It would also be very useful to investigate the degree to which the use of copper currency to pay wages possibly increased or limited worker's other types of earnings. But what must have remained the case with all forms of wage payment is that, unless there was a huge surplus of underemployed labour, it would not have made sense, to hire undernourished workers for tasks that required a lot of physical energy as this would limit the amount of work done. And the most basic way to value standards of living in terms of well-being is to look at the availability of food, how often bad harvests occurred and how they were dealt with. In years of adequate or plentiful production, the nature of food preparation and its enjoyment are also probably more important than simple changes in monetary amounts. Of course, increased income could allow purchase of a luxury like tea which became commonly consumed by labourers in England, or coffee which was consumed by the poor in Antwerp and Amsterdam in the same time period. Also the ability to purchase better quality dress clothing was something very valued, as can be seen in the example of the poor itinerant sailor Edward Barlow who, after having been paid a large sum of his past wages in 1669, bought an expensive suit of clothes and travelled back to his village in Lancashire and took pleasure in showing off to his former neighbours.[71] But in the end, Adam Smith was probably correct to suggest that what really matters when justifying market-driven wage based economic growth was not the endless toil to obtain 'mere trinkets of frivolous utility' but rather the achievement of freedom from famine and want, and a house for shelter and a warm bed.[72]

Notes

1. Notable examples include: Allen (2003), 'Progress and Poverty in Early Modern Europe'; Özmucur and Pamuk (2002), 'Real Wages and Standards of Living', Broadberry and Gupta, 'The Early Modern Great Divergence'.
2. Pomeranz (2001), *The Great Divergence.*
3. Schumpeter, *A History of Economic Analysis*, pp. 318–22; Keynes (1930), *A Treatise on Money*, v, 3–5.

4. McLeay, Radia and Ryland, 'Money creation in the modern economy'.
5. Sargent and Velde, *The Big Problem of Small Change*.
6. This was the theme of a conference entitled, 'The Variety of Exchange and the Character of Money,' 17–18 November 2016 École normale supérieure, Paris. http://transfers.ens.fr/The-Variety-of-Exchange-and-the-Character-of-Money
7. See Muldrew and King, 'Cash, Wages and the Economy of Makeshifts', below, pp. 267–306.
8. Lucassen (2014), 'Deep Monetization', pp. 73–121.
9. Muldrew (2001), 'Hard food for Midas', pp. 101–104.
10. Shaw-Taylor and Wrigley (2014), 'Occupational Structure and Population Change'.
11. This can be seen in the tables in Phelps Brown and Hopkins, *A Perspective of Wages and Prices,* pp. 17–18.
12. Muldrew (2011), *Food, Energy and the Creation of Industriousness*, pp. 228–30.
13. This article is a condensed version of the discussion in this book.
14. Lucassen ed. (2003), *Wages and Currency; Global Comparisons*; Scholliers, and Schwarz, (2003), *Experiencing Wages*; Sonenscher (1984), 'Work and Wages in Paris'.
15. Shammas (1983), 'Food Expenditure and Economic Well Being', p. 95.
16. Gibson and Smout (1995), *Prices, Food and Wages in Scotland*, pp. 337–64; Woodward (1995), *Men at Work*, pp. 212–49, 276–84.
17. Phelps Brown and Hopkins (1981), *A Perspective of Wages and Prices*, pp. 1–59.
18. Thorold Rogers (1866–1902), *History of Agriculture and Prices*, I–VIII.
19. Printed below p. as Figure 1.1 in Hatcher, 'Unreal Wages', p. 230.
20. Clay (1984), *Economic Expansion and Social Change,* I, ch.2.
21. Phelps Brown and Hopkins (1981), *A Perspective of Wages and Prices,* pp. 13–57; Clark (2001), 'Farm Wages and Living Standards', pp. 477–505; Clark (2007) 'Long March of History', pp. 97–135.
22. Clark (2007), 'Long March of History', pp. 105–108; Clark (2004), 'The Price History of English Agriculture', pp. 41–124; Horrell (1996), 'Home Demand and British Industrialization', pp. 565–71.
23. Clark (2007), 'Long March of History', pp. 131–34; Phelps Brown and Hopkins (1981), *A Perspective of Wages and Prices*, pp. 28–31. Clark's chart of real agricultural day-wages is printed below, p. as Figure 1.2 in Hatcher, 'Unreal Wages', p. 230.

24. Clark (2001), 'Farm Wages and Living Standards', pp. 482–3.
25. Thorold Rogers, *History of Agriculture and Prices*, VII, pp. 625–35; Arthur Young (1771), *Six Month Tour Through the North of England,* I, pp. 171–8; 235. For further examples of differences in wages see Wrightson (2000), *Earthly Necessities*, pp. 312–13.
26. Clark (2001), 'Farm Wages and Living Standards', p. 496, Table 9.
27. Ibid., p. 493; Clark (2007), 'Long March of History', p. 107. See below, p. 21.
28. Clark himself noted this, although he did not revise his estimate of beer consumed upwards enough. Clark (2007), 'Long March of History', pp. 106–7, esp. note 14; Clark (2001), 'Farm Wages and Living Standards', p. 496.
29. Other perquisites such as wood chips might have been much more common. Woodward (1995), *Men at Work*, pp. 142–49; Hassell Smith (1989), 'Labourers in Norfolk', I, pp. 23–5.
30. Clark (2001), 'Farm Wages and Living Standards', pp. 479–80.
31. See p. 174 below.
32. Martins and Williamson (1995), *Farming Journal of Randall Burroughes*, pp. 46, 55, 59, 61, 65, 68, 79, 84–87, 123–24.
33. Kussmaul (1981), *Servants in Husbandy*, pp. 37–8; Woodward (1984), *Farming Books of Henry Best*, p. xxxix.
34. Rogers (1866–1902), *History of Agriculture and Prices*, VII, pp. 625–35.
35. Clark (2001), 'Farm Wages and Living Standards', p. 480.
36. Eden (1797), *The State of the Poor*, I–III, pp. 105, 511.
37. Woodward (1984), *Farming Books of Henry Best*, p. 140; Eden (1797), *State of the Poor*, III, p. 822.
38. Gilboy (1929–30), 'Wages in England', pp. 606–7.
39. Martins and Williamson (1995), *The Farming Journal of Randall Burroughes*, pp. 46, 55, 59, 61, 65, 68, 70, 79, 84–7, 123, 124,
40. Speechley (1999), 'Female and Child Agricultural Day-Labourers', pp. 109–10.
41. Overton, Whittle, Dean and Hann (2004), *Production and Consumption in English Households*, pp. 58–60. In contrast brewing equipment declined in inventories from Cornwall, although the Barton estates brewed a lot of their own beer on a large scale.
42. Kussmaul (1981), *Servants in Husbandry*, p. 39.
43. Woodward (1994), 'Means of Payment and Hours of Work', p. 17; Kussmaul (1981), *Servants in Husbandry*, p. 40.

44. Fussell (1936), *Robert Loder's Farm Accounts*, pp. 72, 90, 107–8, 137.
45. Ibid., pp. 72, 90.
46. Cholmeley (1988) *Memorandum Book,* pp. 40, 43–7, 50, 52, 53–4, 56–8, 62–4, 65, 66–8, 73, 75, 79, 80–1, 85, 87, 98ff.
47. Woodward (1984), *Farming Books of Henry Best*, p. 134.
48. Speechley (1999), 'Female and Child Agricultural Day-Labourers', p. 115, n.8.
49. Here extra food was worth £2 13s. 5d. more than the wages. This is due to the much higher food prices of these years than earlier in the century when beef would have been 4d. a lb and pork 5d. But the amounts of ale and meat given here are still less than in many earlier diets. Also, Batchelor stated that the food supplied was needed as 'the extra labour of that period cannot be supported by the ordinary quantity of food.' The total year's work given here for a day labourer was 52 weeks of full time work with an extra 2s. per week from piece work (Batchelor (1808), *General View*, pp. 79, 108).
50. Wrightson (2000), *Earthly Necessities*, pp. 195–97; Woodward (1995), *Men at Work*, pp. 101–7, 131–42, 218, 283–4.
51. Kussmaul (1981), *Servants in Husbandry*, p. 18; Allen (1992), *Enclosure and the Yeoman*, pp. 212ff.
52. Cholmeley (1988), *Memorandum Book*, p. 62.
53. Eleanor (1927), *Account Book of a Kentish Estate*, pp. 474–7.
54. Phelps brown and Hopkins (1981), *A Perspective of Wages and Prices,* Fig. 2.
55. Daunton (1995), *Progress and Poverty*, pp. 455–7.
56. Muldrew (1998), *Economy of Obligation*, pp. 60–5.
57. Since a bushel of wheat produced 75% of its weight in flour, and a bushel of oats only 55% in meal a person would have had to have eaten more oatmeal, but since a pound of oatmeal has more calories than wholewheat this would only have amounted to about 10% more. McCance and Widdowson (2014), *Composition of Foods,* pp. 38–9; Gibson and Smout (1995), *Prices, Food and Wages*, pp. 248–60.
58. Eden (1797), *State of the Poor*, III, pp. cvi–cix.
59. Ibid., III, pp. xcviii–ci.
60. Fussell, (1936), *Robert Loder's Farm Accounts,* pp. 100–101.
61. Woodward (1984), *Farming Books of Henry Best*, p. 45.
62. Ibid., pp. 40, 42–4, 114–5, Eden (1797), *State of the Poor*, III, p. xcix.
63. Martins and Williamson (1995), *The Farming Journal of Randall Burroughes,* p. 65.

64. Sokoll (1993), *Household and Family*, pp. 23–45.
65. This calculation is based on the Atwater scale of a child's consumption being equal to 0.4 of adult food consumption with reduced small beer.
66. Kussmaul (1981), *Servants in Husbandry*, pp. 81–3.
67. Humphries (1990), 'Enclosures, Common Rights, and Women'; Shaw-Taylor, 'Labourers, Cows, Common Rights'.
68. Humphries (1990), 'Enclosures, Common Rights', pp. 24–8.
69. Ibid., p. 33.
70. Muldrew and King, 'Cash, Wages and the Economy of Makeshifts in England, 1650–1800', below, p. 293.
71. Maegraith and Muldrew (2015), 'Consumption and Material Life', pp. 369–397.
72. Adam Smith (1976 edn), *Theory of Moral Sentiments*, pp. 181–3.

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8

Seasonal Patterns of Agricultural Day-Labour at Eight English Farms, 1835–1844

Joyce Burnette

Agriculture is a highly seasonal industry. The timing of tasks is largely determined by the natural growing cycle, and labour demand is uneven across the year. There are a number of different ways in which farms can deal with the seasonal variation in labour demands. The extra workers used at harvest may be local workers pulled away from other industries into agriculture, or women from their unpaid domestic labour, or they may have been unemployed at other seasons. Harvest work may be done by migrant workers who are not local but travel in response to the demand for labour. These different methods of staffing the harvest have different implications for the economy and society. If workers were pulled away from manufacturing, that may have affected the development of manufacturing.[1] If workers needed for the peak season were unemployed at other seasons, then there were many workers who would have had trouble supporting themselves by farm labour, with implications for the standard of living.[2] Poor law payments may have been needed to prevent

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these workers from migrating out and leaving farmers without sufficient labour during the peak.[3]

Recent attempts to determine the standard of living have highlighted how little we know about the length of the working year. While Allen multiplied the daily wage by 250 to obtain annual earnings, other historians have criticized the assumption that day-labourers worked 250 days per year.[4] By comparing day wages with annual earnings of servants hired by the year, Humphries and Weisdorf conclude that the number of days worked per year varied substantially over the period 1260–1850, from as low as 120 days per year to over 300.[5] They find an increase in the work year during the seventeenth and eighteenth centuries, consistent with an industrious revolution, so that by the period studied here the work year was over 300 days per year. This chapter will demonstrate that the number of days worked per year by agricultural labourers varied substantially by location and by individual. While many workers did work over 300 days per year, others worked fewer days and some only a few days. While workdays observed in the wage accounts do not tell us the individual's standard of living, because labourers could be working for others or self-employed when not employed on the farm, they do warn us against simple assumptions about the number of days per year that labourers worked.

Our knowledge of seasonal patterns of agricultural employment is limited by the imperfect measures which have been used to document it. Most measures of seasonality have been indirect. Kussmaul uses marriage dates to identify seasonal patterns.[6] Snell, Boyer and Goose all use poor law records to measure unemployment.[7] Sokoloff and Dollar use wage variation to measure seasonality.[8] However, wages are not good measures of seasonal change in employment because wages were determined by both supply and demand. Only a few studies use farm employment records to measure the seasonality of employment directly.[9] This chapter will provide direct measures of the quantity of labour used in agriculture. While I previously measured the quantity of labour used over the four quarters of the year, this chapter will provide weekly measures of employment and wages.[10]

This chapter uses the wage accounts of eight different farms to examine four questions about the seasonality of agricultural work. First, I examine

the timing and extent of seasonal peaks in employment. Timmer suggests that the "new husbandry" (using turnips and clover) maintained the same harvest peak in August but added employment peaks in March (for ploughing) and June (for manuring and planting turnips).[11] My results do not suggest that March and June were important peaks, but do suggest that the July hay-harvest was often more important than the later corn harvest. My results support Collins' suggestion that harvest did not occur at the same time everywhere, creating opportunities for migrant labour.[12]

Next, I examine available evidence on who provided the harvest labour. A few farms noted that they hired migrant labour, but such workers do not appear to be the dominant source of labour. Females were an important source of peak labour at only a few farms, and boys never were. I also report the distributions of days worked per year across individual workers. Some labourers worked quite regularly, while others worked only a few days for a particular farm. Lastly, I examine the seasonal pattern of wages. Male wages varied seasonally at most farms and female wages at only two farms. However, the timing and extent of wage peaks did not in general match the timing and extent of the employment peaks.

I find it difficult to reach general conclusions about the seasonality of English agricultural work because employment and wage patterns varied greatly across the eight farms I examine. Some farms had much greater variation in employment than others. At some farms wages did not vary seasonally, while at other farms wages nearly doubled during harvest. While some farms used migrant labour or women to staff their peak labour demand, other farms did not. Some labourers were quite industrious, working every day of the year except Sundays, but other labourers worked only half a year, or perhaps a few days.

The Sources

The measures of seasonality presented in this chapter are based on eight farm wage books from the period 1835 to 1844, from farms located throughout England. Table 8.1 provides a description of the farms used. Geographically the farms range from Dorset in the south to Northumberland in the north. Some were tenant farms, and some were

Table 8.1 Farm characteristics

County	Year	Farm name, location	Type	Nat'l Grid North	Average employment
Dorset	1838	John Bragg, Sadborrow	Yeoman	102	13.0
Hampshire	1835	James Edwards, Fyfield	Tenant	147	8.5
Shropshire	1844	Apley Park, Stockton	Estate	299	19.0
Norfolk	1841	Windham, Felbrigg	Estate	340	18.8
Nottingham	1841	Wagstaff & Ward	Tenant	360	1.9
Lincoln	1838	Wm. Scorer, Lincoln	Tenant	372	10.8
York	1838/9	Farm House, Clifton	Yeoman	453	3.5
Northumberland	1844	Featherstone Castle	Estate	561	7.4

Sources: Dorset R.O. D83/22; Durham R.O. D/Sa/E181; Hampshire R.O. 2M37/343; Lincoln R.O Scorer 1/7; Norfolk R.O. WKC 5/250; Northumberland R.O. ZCL.A; Nottinghamshire Record Office DDSJ/36; Shropshire R.O. 5586/5/17/34

Notes: Average total employment is the average number of male-equivalent days of labour in a week, divided by six. The exact location of the Nottinghamshire farm is not known. The accounts for the York farm run from October 1838 to October 1839, so weeks 43–52 were in 1838 and other weeks in 1839

the home farms of large estates, generally managed by a bailiff. Yeoman farms were owner-occupied but not part of a large estate.

The farms also varied greatly in size. Table 8.1 presents the average male-equivalent employment.[13] The smallest farm averaged approximately two labourers, and the largest farms 19. Generally, the estate farms hired more labour than the other farms, a difference which would have been driven by hiring patterns as well as the number of acres farmed. In this chapter, I examine only agricultural day-labourers, and not farm servants hired annually. This makes sense in a study of seasonality, since servants were hired on annual contracts and thus experienced less seasonal variation in employment than labourers.[14] However, farms that hired servants would have hired fewer labourers. At smaller tenant farms

much of the work would have been done by farm servants and the farmer's family, while at larger estate farms most of the work was done by day-labourers. At the Nottingham farm, which had the lowest average employment, the farmer hired two servants, a boy at £3 6s. per year and a man at £12 12s. per year.

I use only farms that paid their workers weekly, so in theory I know in which week the work was performed. This works fairly well with time-rate work, but less well for piece-rate work, where payments might represent work done over multiple weeks. Because I think that piece-rate payments were often for work done over a longer period, I smooth out piece-rate payments by taking a three-week moving average of piece-rate payments.[15] It is also possible that farmers delayed making payments and thus entered payments in their accounts for work done in previous weeks, though most labourers could ill afford to wait for payment. While I do not measure the timing of labour perfectly, I am confident that my measures are an improvement over previous measures of labour seasonality.

Since most farmers paid their workers on Saturday, paydays did not correspond to the same calendar date in each year. I define the week ending between January 4 and January 10 as week one and number subsequent weeks consecutively. This means that July is generally weeks 27–30, and October is approximately weeks 40–43. For those who prefer the more traditional markers of the agricultural year, Lady Day fell in week 12 or 13, and Michaelmas in week 39 or 40. While a full calendar year is 52 weeks plus one day (or plus two days in leap years), I take the year to be 52 weeks, ignoring the one or two extra days.

Employment Peaks

I begin by graphing total employment by week. Since women and children were less productive than men, I calculate total employment as days worked by men plus half of days worked by women and children. This reflects my assumption that women and children were substitutable for men, but not at a one-to-one ratio.[16] Before examining each farm individually, I compare employment patterns across all eight farms. Figure 8.1 presents (in two panels, for legibility) total male-equivalent days worked

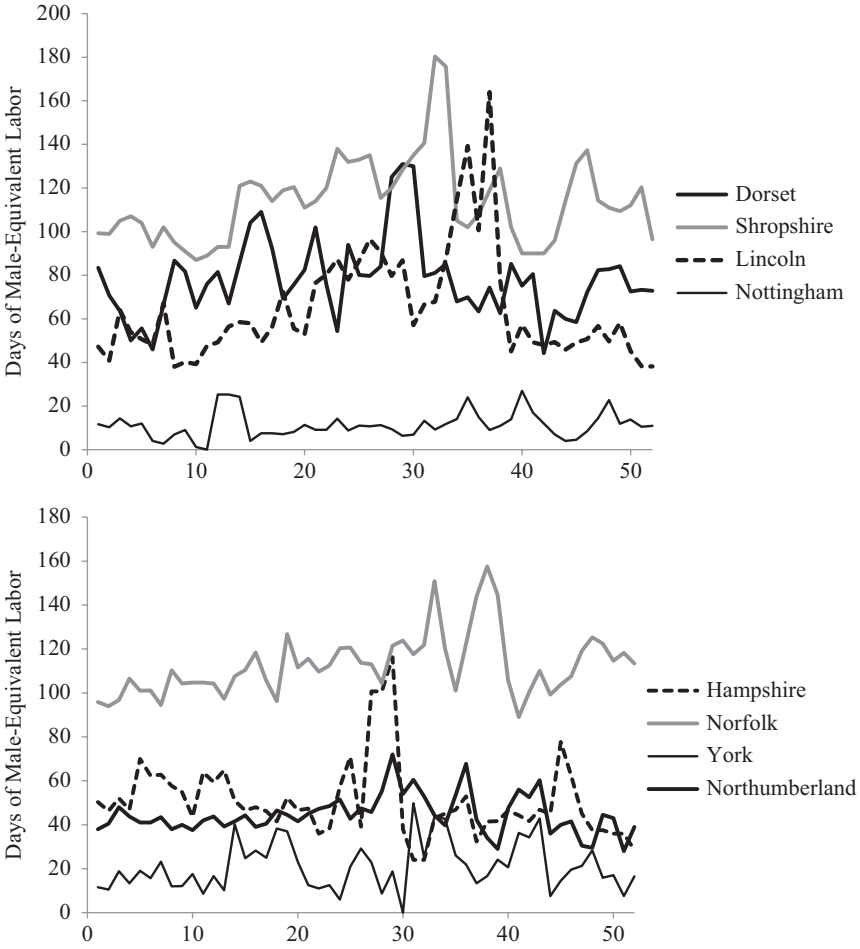

Fig. 8.1 Total employment by week. (Note: Male-equivalent days are equal to days worked by men plus half of days worked by women and children. Piece-rate payments are smoothed over three weeks)

in each week at each of the farms. The figure makes clear that some farms had a much higher base level of employment than others. In addition, we can see that a few farms had dramatic employment peaks, while at other farms employment was more regular. The figure also makes it clear that peak employment occurred at different times in different locations.

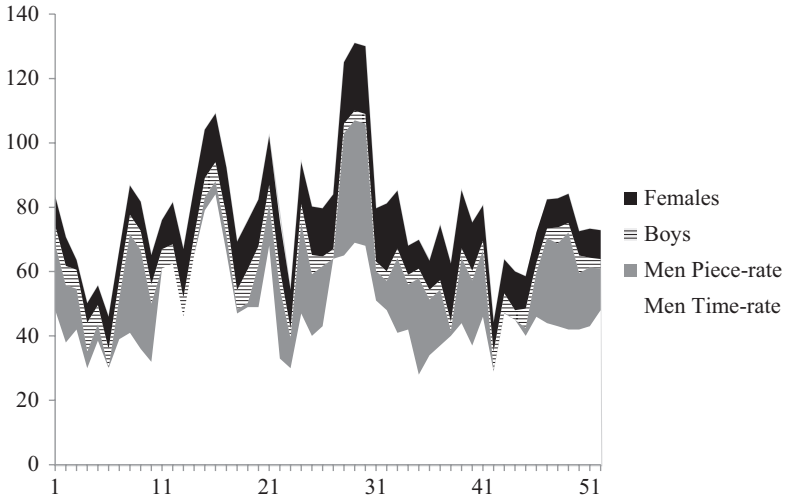

Fig. 8.2 Employment at John Bragg's farm at Sadborrow, Dorset, 1838

The two southernmost farms had strong employment peaks in July, during the hay-harvest. Figure 8.2 shows employment at John Bragg's farm in Thorncombe, Dorset.[17] The farm reached its maximum employment in July (weeks 28–30), when there was a large payment for mowing 73 acres. Total employment in week 29 was two-thirds greater than average employment. Piece-rate payments for harvesting wheat and oats were made Sept. 15 (week 37), but these payments were smaller than the payments for mowing hay in July and did not lead to a particularly high employment peak. James Edwards' farm in Fyfield, Hampshire, also had its employment peak in July (weeks 27–29). Here peak employment was more than twice average employment (Fig. 8.3). The entire increase in employment occurred in piece-rate payments, which were paid for mowing and turnip hoeing.

William Scorer's farm in Lincoln also had a large increase in employment during the peak, but its peak was later, for the corn harvest (Fig. 8.4). Peak employment occurred in mid-September (week 37), when there were a couple of large piece-rate payments "for shearing". Employment that week was two-and-a-half times average employment, an increase which required an additional 16 workers.[18] The hay-harvest occurred in July, and required an increase in employment of about 50 per cent.

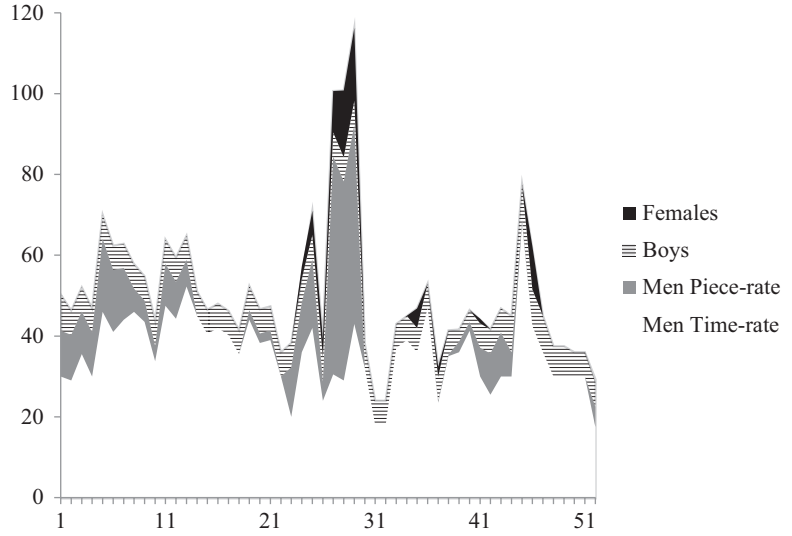

Fig. 8.3 Employment at James Edwards' farm in Fyfield, Hampshire, 1835

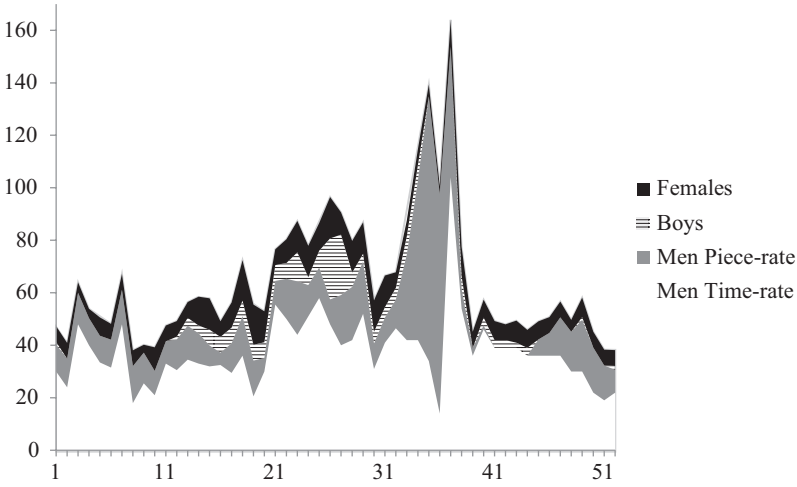

Fig. 8.4 Employment at William Scorer's farm near Lincoln, 1838

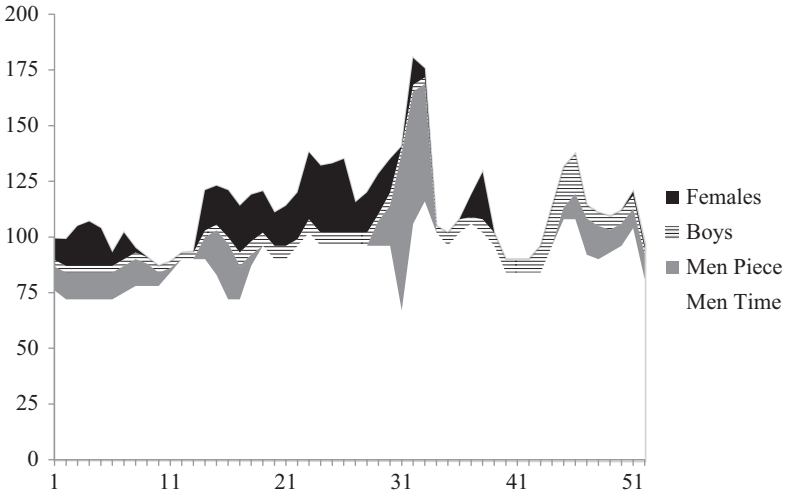

Fig. 8.5 Employment at Apley Park, Shropshire, 1844

The Shropshire and Norfolk farms were the two largest farms, and both had a higher level of male employment throughout the year. Figure 8.5 shows employment at the Apley Park estate farm in Shropshire. The peak is clear, though employment did not double during the peak like in Lincoln; employment in the peak week was 58 per cent above the average. However, since this farm had a high average level of employment the absolute increase in employment was still quite large, and similar to the absolute increase in employment at Dorset and Hampshire (about 60 days of work in the week). At Apley Park, the peak occurred in early August (weeks 32–33), not much later than the hay-harvests in Dorset and Hampshire and substantially earlier than in Lincoln. The increase in employment was mainly due to piece-rate work, and the payments indicate that this is mainly for "cutting wheat" plus a bit of hoeing turnips. The accounts to not name the workers who were paid for cutting wheat, and they may have been migrants; Collins (1976, p. 46) suggests that there were many Welsh or Irish harvesters in Shropshire.

The Felbrigg estate in Norfolk (Fig. 8.6) had two labour peaks, one in August (week 33), corresponding to the hay-harvest and another in September (week 38), corresponding to the corn harvest. Since the Felbrigg accounts include detailed descriptions of work done, we have good information on what the labour was used for. During the first peak,

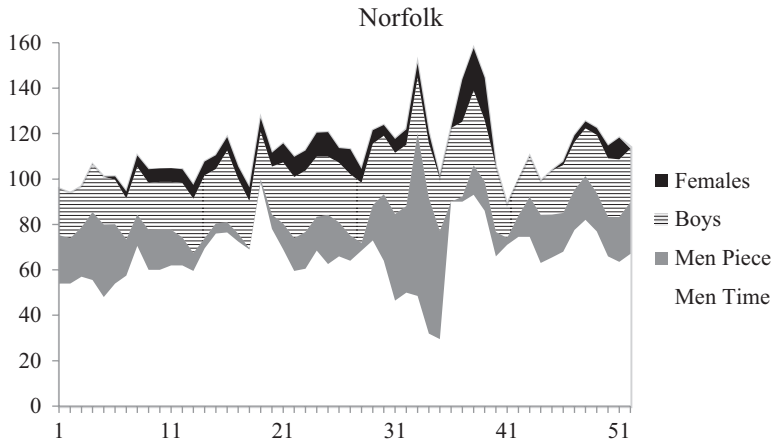

Fig. 8.6 Employment at the Windham estate in Felbrigg, Norfolk, 1841

the most common tasks are mowing and gathering hay, and hoeing turnips. During the second peak, workers were cutting, turning, raking, stacking and loading barley and wheat. The increase in employment was smaller than at the similarly-sized Shropshire farm; during the hay-harvest employment was 34 per cent above average and during the corn harvest employment was 40 per cent above average.

The remaining farms had multiple employment peaks. Employment varied substantially, but instead of one single peak there were multiple peaks of similar magnitude. Featherstone Castle farm was an estate farm, but was not as large as the Shropshire or Norfolk estate farms. Figure 8.7 reveals three main peaks, the highest in late July (week 29), the second in early September (week 36) and the third in late October (week 43). Since the wage accounts for this farm include a record of the work done, we know what the workers were doing during these times. During weeks 29–32, the women hired were listed as worked on "Hay and Turnips". During the second peak, in week 36, workers were also hay-making. The three-week period of highest labour during October (weeks 41–43) saw the harvesting of both oats and potatoes. Week 41 was mainly binding and stacking oats, and week 43 was mainly "taking up" and gathering potatoes. At its highest point, in week 29, employment was 27 days above average, or about 62 per cent higher than usual.

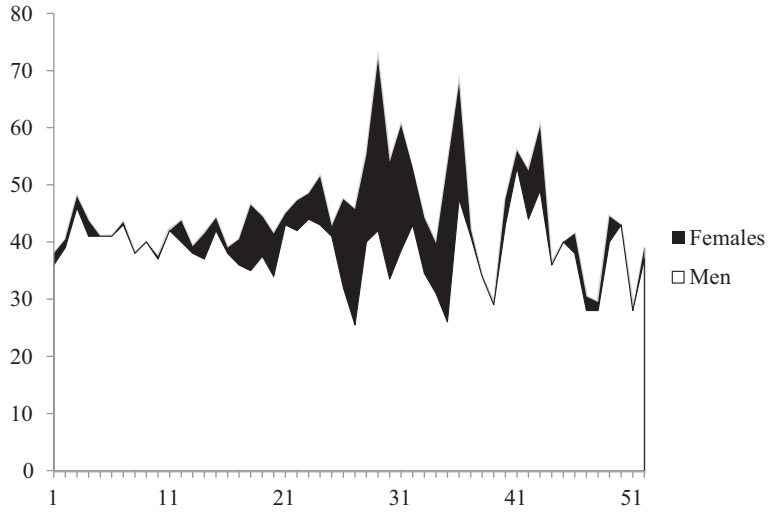

Fig. 8.7 Employment at Featherstone Castle estate farm in Northumberland, 1844

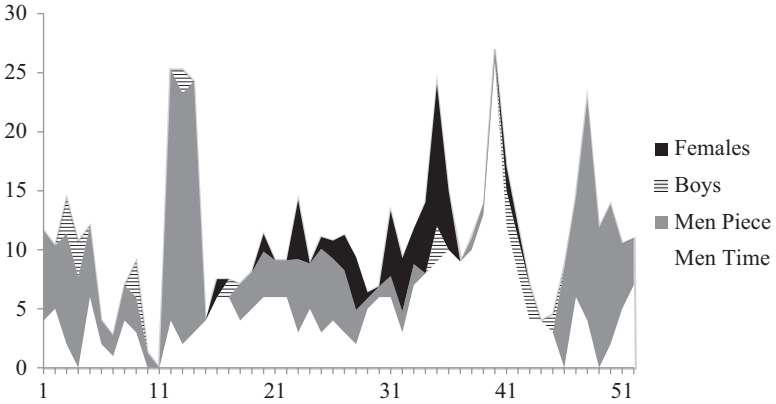

Fig. 8.8 Employment at Wagstaff & Ward's farm in Nottinghamshire, 1841

The Nottingham and York farms were the smallest. Glancing back at Fig. 8.1 confirms that even at their peaks these firms did not hire as much labour. Both farms had employment that was extremely variable, but had multiple peaks. At the Nottingham farm (Fig. 8.8), there were four identifiable peaks, at weeks 12–14, 35, 40 and 48. Since the typical

level of employment at this farm was quite low, all of these peaks had more than double the average employment, though the farm needed to hire no more than three additional labourers. The first peak, in late March and early April, corresponds to a large piece-rate payment for threshing clover seed. For the second peak, in early September, the accounts note only that there was "harvesting". For the third peak, in early October, the farmers hired, in addition to the usual labourers, seven men for two days each. These men were presumably using the "machine" which was rented for £1 2s. 6d. Since few machines were used in agriculture before 1850, it was most likely a threshing machine. The fourth peak, in November, corresponds to a payment for "8 acres of wheat & oates mowing", which may have been a payment for work performed earlier in the year. Generally, the Nottingham farm seems to be one which relied heavily on annual servants, and hired labourers irregularly.

Farm House farm near York (Fig. 8.9) also had multiple labour peaks. The two largest peaks, in August (weeks 31–34) and late October (week 43), seem to correspond to the harvests. During the August peak the farmer also bought "6 hay rakes", suggesting that this was the hay-harvest.

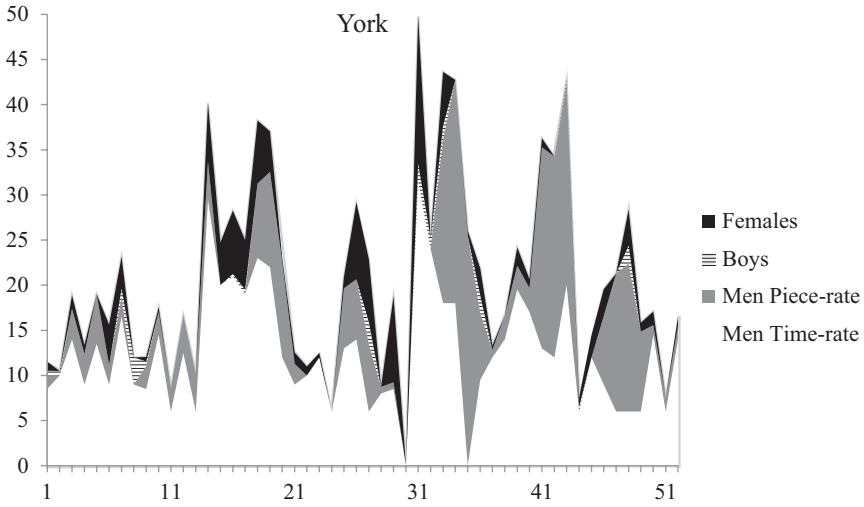

Fig. 8.9 Employment at Farm House farm near York, 1838/39

In the second peak workers were paid for "corn cutting". During both of these peaks employment was at least double the average level. April, however, was also busy, at least partly for threshing, and employment in weeks 14 and 18 was nearly double the average.

The timing of seasonal patterns at these eight farms does not support Timmer's claim that the new husbandry (using turnips and clover) created additional peaks in March and June. In fact, July turns out to be the most common time of peak labour demand.[19] Figure 8.10 graphs total employment at all eight farms and Timmer's predicted employment at a 500-acre "new husbandry" farm, based on the timing of tasks in Arthur Young's *Farmer's Calendar*.[20] I find no evidence of a peak in March. I find June employment to be higher than winter employment, but I find the highest total employment in July, for the hay-harvest.

Since the timing of harvest depended on the growing season, we might expect harvest to be later at farms farther north. Figure 8.11 explores the relationship between geography and the timing of the labour peak. On the x-axis is the location of the farm measured by how far north it is on the British National Grid. The y-axis measures the week of highest employment, distinguishing between the hay-harvest and corn harvest.

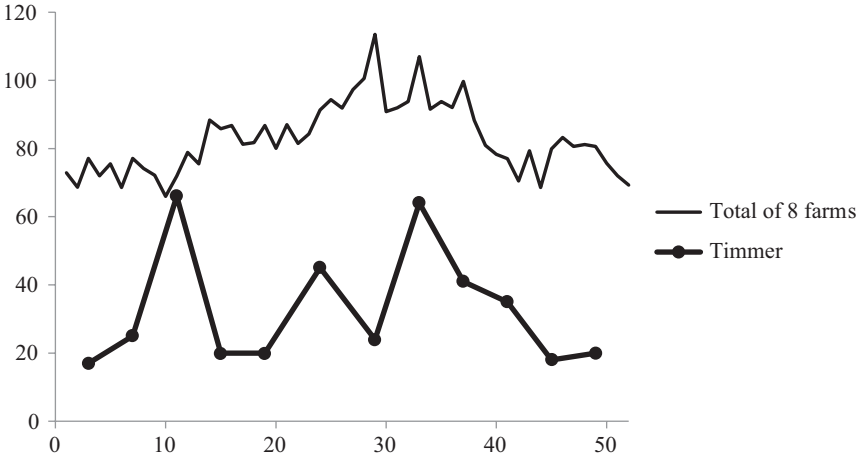

Fig. 8.10 Timmer's seasonal pattern compared to total employment of eight farms

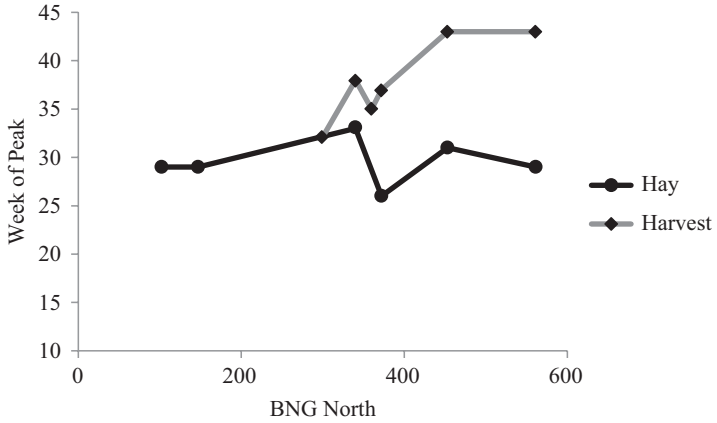

Fig. 8.11 Geography and the timing of the seasonal peak

Hay-harvest was around week 30 regardless of how far north the farm was, but the corn harvest seems to have been later at farms farther north. Such variation in the timing of harvest would create opportunities for migrant labourers to work multiple harvests in different locations.

Staffing Peak Employment

Where did farmers get the labour they needed for the peak periods? Did they use local workers who were unemployed during slack periods, or workers who migrated in for the harvest? I find that women were sometimes a source of labour, as were migrant workers, but that the harvest still placed a great demand on local men.

Women and boys generally provided a small portion of the labour, but at some farms their labour was an important labour reserve that could be used when demand was high. Table 8.2 measures the portion of total male-equivalent days worked provided by females and boys, overall and during the hay harvest and corn harvest. (Girls, who were rarely employed, are included with women.) At some farms, women and children did not contribute at all to a flexible workforce. At the Dorset and Shropshire farms, fewer females and boys were hired during harvest than at other

Table 8.2 Employment of women and boys during harvest. Per cent of total male-equivalent days

	Over the year	Hay-harvest	Harvest
Dorset			
Females	16.0	15.8	
Boys	6.1	2.3	
Hampshire			
Females	2.9	14.1	
Boys	12.2	5.7	
Shropshire			
Females	8.5		3.2
Boys	4.7		1.8
Norfolk			
Females	4.6	4.1	12.6
Boys	21.1	16.2	20.8
Lincoln			
Females	12.3	13.7	4.4
Boys	5.3	15.5	0.0
Nottingham			
Females	9.8		50.0
Boys	4.4		12.5
York			
Females	11.1	13.8	0.9
Boys	1.7	2.9	0.4
Northumberland			
Females	13.7	33.4	13.5
Boys	0.0	0.0	0.0

Sources: See Table 8.1

times of year. At other farms, female employment expanded greatly when labour demand was high. Female employment expanded from 3 per cent to 14 per cent of employment during hay-harvest at the Hampshire farm, and from 14 per cent to 33 per cent of employment during the hay-harvest in Northumberland. At the Nottingham farm, women provided half of male-equivalent labour during harvest. Figures 8.7 and 8.8 demonstrate that female labour provided most of the extra labour needed for harvest at the Northumberland and Nottingham farms. The only farms where boys provided a substantial portion of employment during harvest were the Norfolk and Lincoln farms, and only at the Lincoln farm did the employment of boys expand significantly relative to the rest of the year, and then only for the hay-harvest. Boys were generally not an important source of harvest labour, and women were at only a few farms.

A few of the wage accounts give us more information on the origin of the workers hired. The Farm House accounts (York) tell us that migrant workers were used. On July 29, the farm hired an "Irishman" for two days. This was the week of maximum employment, but since he was hired for only two days, the Irishman provided only 4 per cent of the labour hired that week. In early September, Irishmen were hired for harvest; £2 9s.6d. was paid to "Irishmen for Shering 4.5 acres". This was a substantial sum, and represented about 20 days of work, but this payment did not occur at one of the peaks in labour demand. The farm also hired men who travelled a shorter distance, from York. In week 37, the farm hired "4 Men from York at Hay" for one day each and "2 Men from York Leading". Since this was a slow week, these men provided approximately half of the labour hired that week. In October, the farm paid £1 to "Irishmen for Sheering Beans", which was about two-fifths of the labour hired in week 40. During the months of September and October, migrant workers were paid 85s.6d., or about 16 per cent of the 550s. paid to all workers during these months. During these months, male employment average was 37 per cent above average, and total employment was 25 per cent above average. Thus, while the migrants were a small portion of total employment, they provided approximately half of the increase in employment during these months.

The Lincolnshire farm also hired Irishmen, though here they were a less significant source of labour. William Scorer paid "Irishmen for shearing" in September of 1838. He paid them a total of 29s., which is only 14 per cent of the 203s. he paid his own labourers for mowing the same week. Migrant workers may have been used by some of the other farms without being noted as migrants in the wage accounts. At the Shropshire farm, the peak in employment is due to a payment listed as "9 men cutting weate". Since the men are not named, they could have been either local or migrant workers.

The Norfolk wage accounts, by contrast, provide the name of every worker, even for piece-rate payments, suggesting that workers employed for the harvest were known to the bailiff. Nearly all of the 16 men and 12 boys who worked during the peak harvest week (week 38) also worked during the slack season. There are four exceptions, two of which were boys. Edwards and his boy worked only weeks 36–39; Edward Grimes

worked only weeks 32–39, and the boy Robert Woodhouse worked only weeks 38 and 39. Since these workers were named, they were probably not migrant labourers. Unfortunately, we cannot tell from the Felbrigg wage book whether they were unemployed at other times of year.

The wage accounts examined suggest that boys were not an important source of harvest labour. Female labourers were an important source of harvest labour only occasionally, at a few farms. I also find that some farms used migrant workers, and some did not. In general, women and migrants did not provide sufficient labour to meet the fluctuations in labour demand, so employment must have fluctuated seasonally for male labourers.

Distribution of Days Worked

When labourers are named, I can count the total number of days worked per year by each labourer. Unfortunately, labourers were not always named, as when William Scorer paid "Irishmen for shearing" and the Apley Park estate paid for "9 men cutting weate". The Nottingham farm does not provide enough information on the names of workers to be used in this analysis, and the Lincoln farm does not name its boys. Since most of the farms have at least some portion of the workforce that is unnamed (reported in Table 8.4), the results reported here have some measurement error.

Table 8.3 shows the number of named individuals, by regularity of employment, and Table 8.4 shows the percentage of total workdays provided by workers in each category, plus the percentage of workdays provided by unnamed labourers. A labourer who worked six days a week for 52 weeks would work 312 days in a year. There were nine such men at these seven farms, and 30 men who worked at least 300 days in the year. While the number of casual workers providing less than 30 days of work is greater than the number of regular workers at all farms except Norfolk, they provide a much smaller portion of labour for the farm.

The three estate farms had the most regular workers. At Felbrigg in Norfolk 83 per cent of men's workdays were worked by individuals working at least 300 days per year. At the Shropshire and Northumberland

Table 8.3 Numbers of named workers, by days worked in the year

	Dorset	Hampshire	Shropshire	Norfolk	Lincoln	York	Northum.
Men							
x≥300	2	2	8	11	4	0	3
200≤x<300	3	2	5	1	1	3	3
100≤x<200	4	3	4	1	2	0	1
60≤x<100	2	2	6	1	4	0	0
30≤x<60	5	1	4	1	2	2	2
x<30	11	15	20	7	19	2	7
Boys							
x≥300	1	2	1	3		0	0
200≤x<300	0	0	0	3		0	0
100≤x<200	1	0	1	3		0	0
60≤x<100	0	0	0	0		0	0
30≤x<60	0	0	0	0		0	0
x<30	2	3	2	9		5	0
Females							
x≥300	2	0	0	0	0	0	0
200≤x<300	1	0	0	0	0	0	0
100≤x<200	2	0	5	2	3	0	0
60≤x<100	0	0	4	0	2	2	3
30≤x<60	1	1	1	1	0	1	4
x<30	1	6	6	2	1	14	13

Sources: See Table 8.1

Table 8.4 Percentage of days worked by regularity of worker

	Dorset	Hampshire	Shropshire	Norfolk	Lincoln	York	Northum.
Men							
x≥300	17.9	30.5	48.1	83.3	46.7	0	46.4
200≤x<300	23.0	23.4	24.4	7.3	9.4	88.0	38.2
100≤x<200	18.6	21.9	9.5	4.3	11.5	0	8.5
60≤x<100	4.7	6.5	9.6	2.0	13.1	0	0
30≤x<60	7.1	2.0	3.9	1.2	2.4	8.7	4.2
x<30	4.3	6.3	1.1	2.0	8.3	3.3	2.7
Unnamed	24.5	9.5	3.3	0	8.7	0	0
Boys							
x≥300	62.2	95.7	64.9	38.6		0	0
200≤x<300	0	0	0	36.9		0	0
100≤x<200	32.4	0	25.1	20.6		0	0
60≤x<100	0	0	0	0		0	0
30≤x<60	0	0	0	0		0	0
x<30	3.5	4.3	10.0	3.9		92.2	0
Unnamed	1.9	0	0	0		7.8	0
Females							
x≥300	47.6	0	0	0	0	0	0
200≤x<300	21.7	0	0	0	0	0	0
100≤x<200	24.1	0	61.1	79.9	75.0	0	0
60≤x<100	0	0	28.3	0	23.2	54.8	35.5
30≤x<60	4.6	29.1	2.8	11.2	0	18.7	31.2
x<30	2.0	70.9	6.9	8.9	1.8	26.6	33.3
Unnamed	0	0	0.9	27.7	0	0	0

Sources: See Table 8.1

farms, nearly half of men's days were worked by regular workers. These farms may have hired fewer annual servants, creating a need for labourers hired regularly. Estates also used labourers year-round for capital investments such as hedging, ditching and draining.[21] The Lincoln farm, though not an estate farm, also obtained nearly half of its labour from regular workers. Across the seven farms, there is a negative correlation (−0.40) between the ratio of peak to average men's employment and the percentage of days worked by the more regular workers (those working at least 300 days). This is reasonable because farms that had less fluctuation in demand for labour would be able to offer more regular jobs.

Casual labourers were numerous, but they contributed only a small portion of total workdays, at least for adult men. Unfortunately, we don't know what these workers were doing when not hired by these farms. It is possible that they worked for other farmers, combining multiple short job into more regular employment. They may also have had other occupations, or spent slack times in their own gardens. Historians have suggested that handloom weavers would leave their weaving to work in agriculture during harvest.[22] It is also possible that some of these men were simply unemployed much of the year, dependent on the poor law. Boyer suggests that poor law payments were designed to prevent labour needed for harvest from migrating out of the area. Unfortunately, the farm accounts do not tell us how many days labourers worked during the year. However, they do suggest that only a portion of the labourers were employed more than 300 days per year at one farm, and that tenant and yeoman farms generally had fewer such workers than estate farms.

Wage Premia

If farmers had to rely on local men for most of their harvest labour, we would expect to observe an increase in wages during peak demand. We observe an increase in the wage during harvest at some farms, but not at all of them. Figure 8.12 compares the wage patterns at all the farms. Since individual workers were paid different wages, reflecting their individual abilities, and thus a simple average wage would vary with who was employed, I measure the seasonal pattern of wages using a fixed-effect

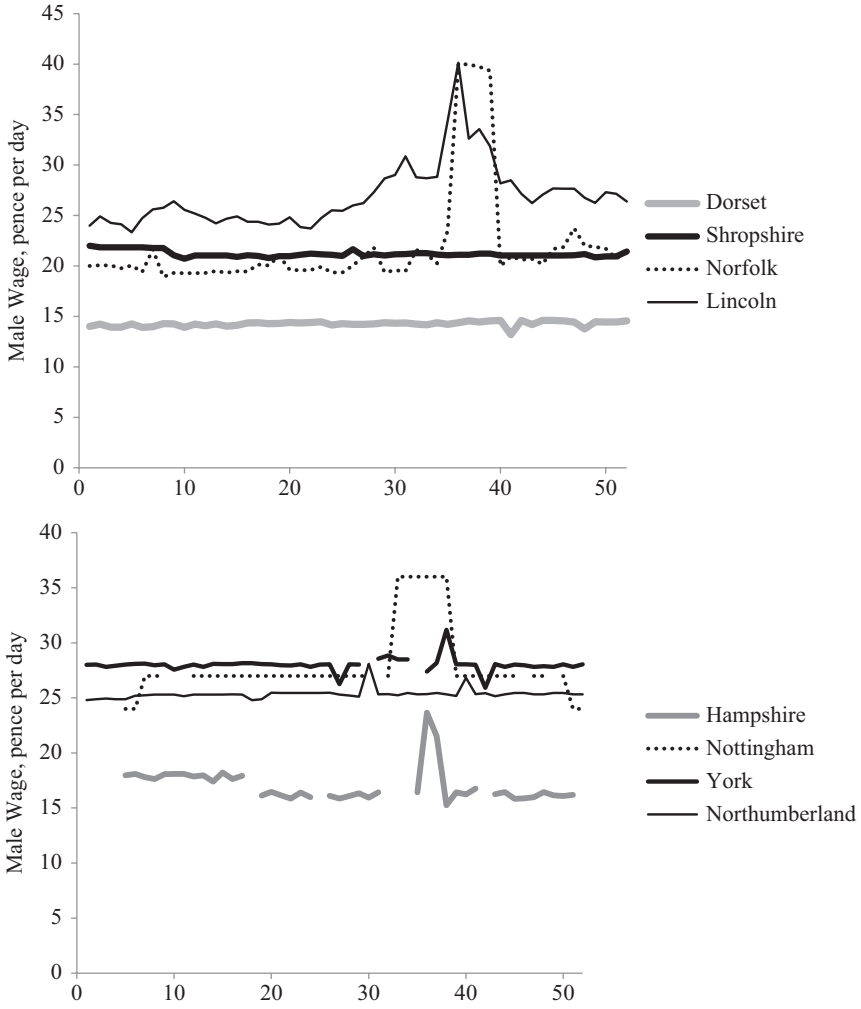

Fig. 8.12 The seasonality of male wages

regression. I regress the wage paid to each male worker each week of the year on dummies for week and dummies for individual workers. Thus, wage patterns are estimated based on changes in the wage paid to a particular individual. (The exception is the Nottingham farm, which does not name its workers but simply lists wages paid to "a labourer", "a woman", or "a boy".)

At some farms, wages did not change seasonally. At the Dorset and Shropshire farms, the maximum male wage was less than 4 per cent above the average. At the Shropshire farm, the main change in wages was a decrease in the typical male wage at the end of February, when half of the men saw a cut in their wage of one or two pence per day. Both farms experienced substantial changes in employment; peak male employment was about around 75 per cent higher than average during the peak. However, these farms were able to staff this increase in employment without paying higher wages.

At the York and Northumberland farms, the peak male wage was about 10 per cent higher than average. In Northumberland, the wage peaks correspond to the hay and corn harvests, with wages increasing more during hay than during the corn harvest (Fig. 8.13). At the York farm, the male wage increased for only one week in September, and the timing of the increase does not correspond to a week when employment was high (Fig. 8.14). This suggests that not all farms in the areas had their peak employment in the same week.

Other farms saw more substantial seasonal peaks in male wages, though not always at the same time as the employment peak. At James Edwards' farm in Hampshire, wages increased to 39 per cent above their usual level

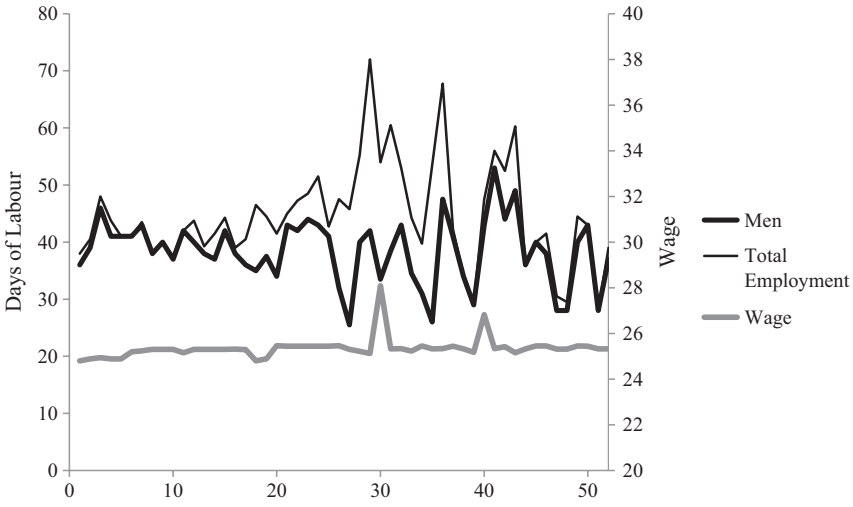

Fig. 8.13 Wage and employment peaks at Featherstone Castle, Northumberland. (Note: Male and total employment are measured on the left axis; wage is measured on the right axis)

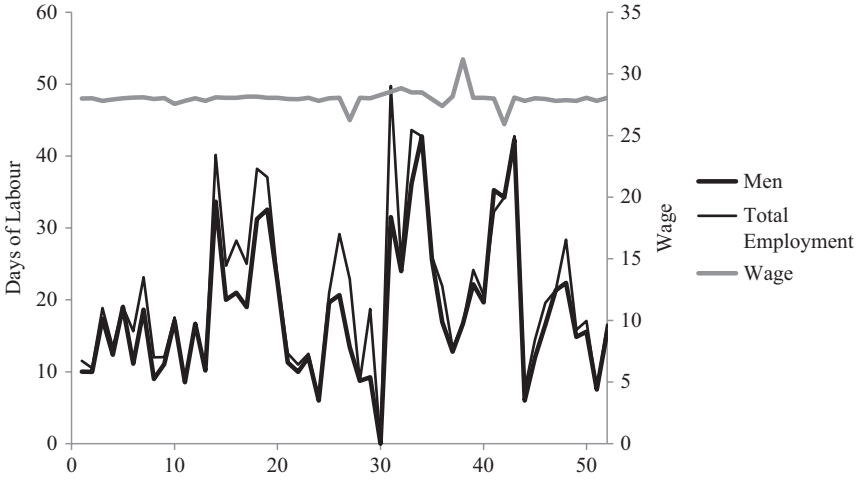

Fig. 8.14 Wage and employment peaks at Home Farm near York

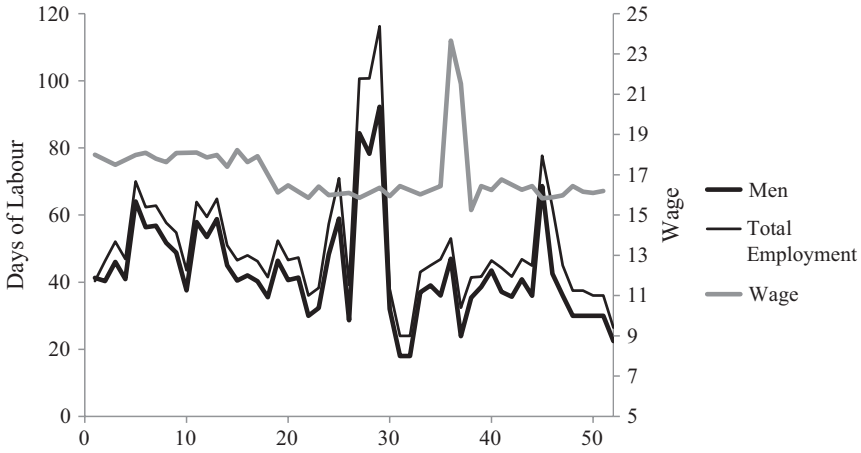

Fig. 8.15 Wage and employment peaks at Edward's farm in Hampshire

in September (week 36, see Fig. 8.15). Employment at this time was not particularly high. Employment at Edwards' farm peaked during the July hay-harvest, which did not see any increase in the wage rate.

At the Nottingham farm, wages peaked at 30 per cent above their average during late August and September (weeks 33–38, see Fig. 8.16). This was generally the time of the harvest, though during this time the farm's

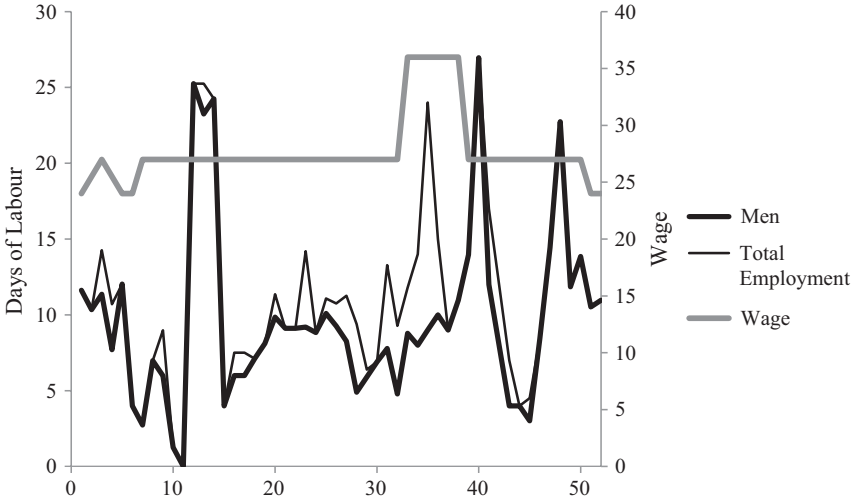

Fig. 8.16 Wage and employment peaks at Wagstaff and Ward's farm in Nottinghamshire

employment is only particularly high during week 35, and the increased employment during that week was due to the hiring of female, not male, labourers. Wagstaff and Ward did not hire a significant number of male workers during the harvest season until week 40, after wages returned to their normal level. Perhaps the farmers waited until male wages fell to hire the threshing machine. If so, the high harvest wages served to spread the demand for labour more evenly across the year.

The farms experiencing the greatest wage increases were those in Lincoln and Norfolk, and at both of these farms, the wage and employment peaks occurred at the same time. At William Scorer's farm in Lincoln, wages during September were 49 per cent above their usual level (Fig. 8.17). During September, that farm employed approximately twice as much labour as usual. The Felbrigg estate in Norfolk saw the largest increase in wages; it paid harvest wages that were 83 per cent above the average (Fig. 8.18). This wage increase occurred during the harvest, when the farm hired more workers than at any other time of year.

Female wages were flat throughout the year at most farms. Only two of the eight farms show evidence of seasonal fluctuations in female wages.

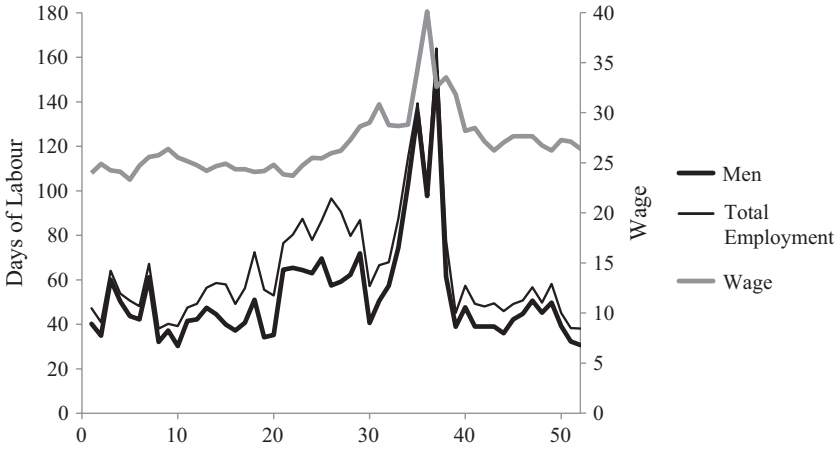

Fig. 8.17 Wage and employment peaks at Wm. Scorer's farm near Lincoln

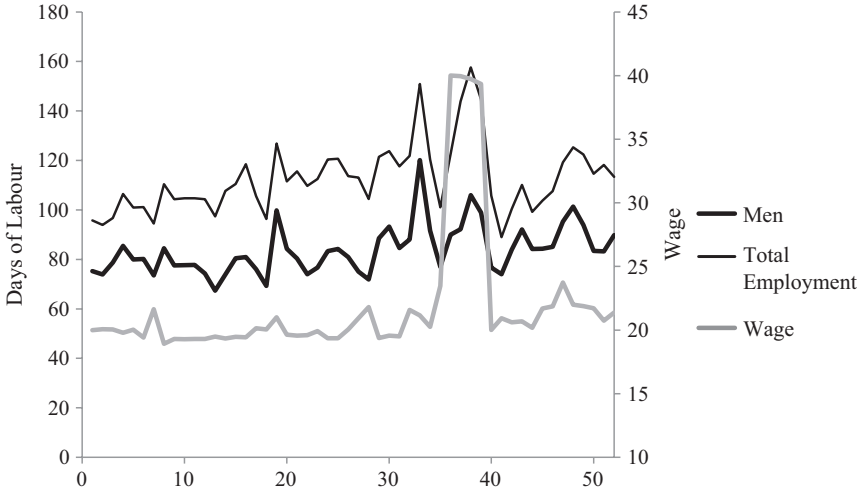

Fig. 8.18 Wage and employment peaks at Felgrigg, Norfolk

At these two farms, however, female wages rose substantially. Figure 8.19 graphs female daily wages at the Nottingham and York farms. At Wagstaff and Ward's farm in Nottinghamshire, female wages increased 80 per cent between June and August (from 10d. to 18d.). In percentage terms, this was greater than the one-third increase in the male wage over the same

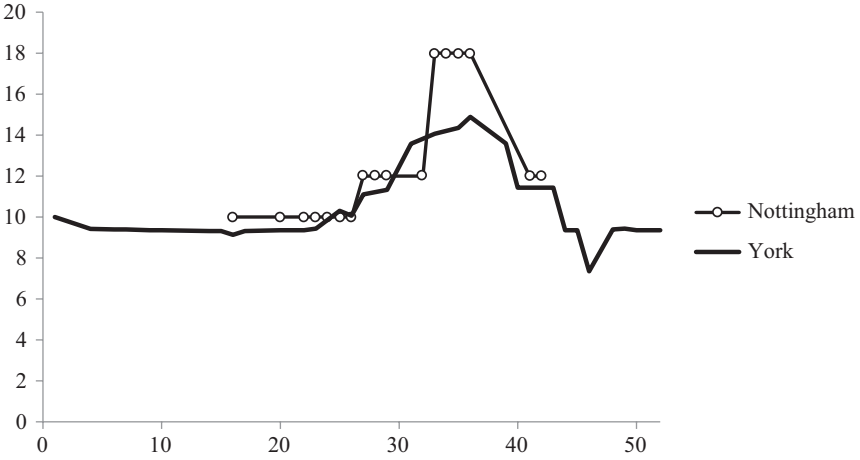

Fig. 8.19 The seasonality of female wages

period (from 27d. to 36d.). The timing of the peak female wages did correspond to the time when the farm hired the most women. Female wage premia did not necessarily follow male wage premia. At Farm House farm near York female, wages increased 60 per cent between June and September, while male wages were mostly flat (increasing only 10 per cent for one week in September).

Did wages increase the most at farms where employment increased the most? Table 8.5 suggests that they did not. The Norfolk farm, which experienced the greatest increase in wage, saw only relatively modest increases in employment during harvest. Both the Dorset and the Shropshire farm, where wages were flat throughout the year, had greater variation in employment than did the Norfolk farm. This suggests that the Norfolk farm was the most supply-constrained of the farms. Even a large increase in wages did not provide a very large increase in the labour force. Other farms seem to have been able to expand their workforce without an increase in wage. This hypothesis is supported by the fact that the Norfolk farm was the only one to give men "hiring money" to ensure their harvest labour.[23]

The two farms nearest cities (York and Lincoln) had the greatest increases in male employment at the peak. Both farms saw wage increases

Table 8.5 Variation in wages and employment compared

	Peak/ average wage	Peak/average men employed	Peak/average total male-equivalent employment	Population density in 1841
Dorset	1.024	1.76	1.68	0.728
Shropshire	1.038	1.71	2.28	1.052
Northumberland	1.108	1.38	1.62	0.204
York	1.113	2.33	2.37	1.739
Nottingham	1.292	2.79	2.39	1.413
Hampshire	1.389	2.14	2.28	0.529
Lincoln	1.492	2.89	2.53	2.245
Norfolk	1.829	1.43	1.40	0.721

Sources: See Table 8.1. Population density is population in 1841 per hectare at the hundred level, from Wrigley (2011)

that presumably served to draw in workers from the city, but they did not need to raise their wages as much as the Norfolk farm. The most remote farm, Featherstone Castle, relied largely on female labour to staff its peak demand, and male employment increased only a small amount. The Hampshire farm, by contrast, was located in a region of relatively low population density, but still managed to double its workforce for the hay-harvest.

While both wages and employment were seasonal, the relationship between the two was more complex than is usually assumed. Even where wages increased substantially during harvest, the wage peak did not necessarily correspond to the employment peak at a particular farm. This may be because high wages served to ration labourers, encouraging farmers with less urgent need to shift their employment to times when labour had a lower opportunity cost. Nor is it the case that wages increased the most where employment increased the most. This should not be surprising because wages are determined by both supply and demand, and each of these farms represents only a portion of the local labour market. How much employment increased during the peak was highly correlated with population density, and wage increases may have discouraged hiring during the peak, though the relationship is not significant.[24] In any case harvest wage premia should not be used to measure the extent of employment fluctuations.

Conclusion

No one seasonal pattern describes the experience of all English farms. Examining just eight farms, we have seen a wide variety of seasonal patterns in wages and employment. Some farms had a large increase in employment during hay or harvest. At other farms, harvest did not stand out so clearly from other times of year. Peak employment ranged from one-third more than average employment, to almost three times average employment. Some farms used female and migrant labour to supply the increased need for labour, but some did not, and generally these extra sources of labour were not enough to supply the entire seasonal demand. Some farms paid higher wages during harvest, up to 83 per cent more than the normal wage, but at other farms wages were flat throughout the year. Wage movements did not in general match movements in employment, at least for individual farms. While a significant number of labourers worked more than 300 days per year, there were also labourers who worked only half the year, or only a few days. There was no uniformity in the number of days worked per year across individuals or locations.

Notes

1. Sokoloff and Dollar (1997), 'Agricultural Seasonality'.
2. Feinstein (1998), 'Pessimism Perpetuated'.
3. Blaug (1963), 'The Myth of the Old Poor Law'; Boyer (1990), *Economic History of the English Poor Law*.
4. Allen (2009), *The British Industrial Revolution*.
5. Humphries and Weisdorf (2017), 'Unreal Wages?'.
6. Kussmaul (1981), *Servants in Husbandry*.
7. Snell (1985), *Annals of the Labouring Poor*; Boyer (1990), *Economic History of the English Poor Law*; Goose (2006), 'Farm service'.
8. Sokoloff and Dollar (1997), 'Agricultural Seasonality'.
9. See Gielgud (1992), *Nineteenth-Century Farm Women*; Burnette (1999), 'Labourers at the Oakes'; Verdon (2002), *Rural Women Workers*, and Burnette, 'The Seasonality of English Agricultural Employment'.

10. Burnette (2013), 'The Seasonality of English Agricultural Employment'.
11. Timmer (1969), 'The Turnip'.
12. Collins (1976), 'Migrant Labour'.
13. Computed as average weekly male-equivalent days of work divided by six. Male-equivalent days are total days worked by adult men, plus half of days worked by women and children.
14. Servants were not immune to seasonality, though. Snell (1985), *Annals of the Labouring Poor*, uses poor law records to measure the seasonal patterns of unemployment for farm servants.
15. Under the assumption that piece-rate payments are paid after work is done but not before, I take as the piece-rate work in week t the average of piece-rate payments in week t, t+1, and t+2.
16. Sokoloff (1986), 'Productivity Growth in Manufacturing' makes the same assumption for US manufacturing. Burnette (2015), 'The Paradox of Progress,' establishes that women were approximately half as productive as men in US manufacturing, and I would not expect them to be more productive in agricultural work requiring strength. Wage ratios at these farms also suggest that women and boys were approximately half as productive as men.
17. While Thorncombe is currently in Devon, it was located in Dorset in 1838. John Bragg had a small estate, renting only a few houses.
18. Employment in the peak was 164 days, compared to an average week of 65 days.
19. Timmer (1969), 'The Turnip'.
20. Timmer (1969), 'The Turnip', reports the total number of "monthly workers". I report the sum of the total number of male-equivalent workers over all farms, where the total number of male-equivalent workers is days worked by men plus half of days worked by women and children in the week, divided by six.
21. Armstrong (1988), *Farmworkers*, p. 23.
22. Collins (1976), 'Migrant Labour', p. 40; Armstrong (1988), *Farmworkers,* p. 26.
23. On August 28, 1841, 13s. was paid for "Hirring Money Harvest Men". Norfolk R.O. WKC 5/250.
24. The regression, on only eight observations, is: Per cent Increase in Total Employment = 2.10 + 0.48(Population Density) – 0.43(Per cent Increase in Male Wage). The coefficient on population density is significant at the 5 per cent level, but the coefficient on the wage is not.

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9

Unreal Wages: Long-Run Living Standards and the 'Golden Age' of the Fifteenth Century

John Hatcher

Not many decades ago the long fifteenth century was a notoriously dark age in English history, neglected because it was located awkwardly between the 'true' middle ages and the early modern era. When at last it began to receive the attention it warranted, attempts to dispel the gloom were

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bedevilled by an ambition to fashion generalisations that fitted the whole experience of the 150 years after 1350, or even the quarter millennium from 1300 to 1550. As a result fundamental disagreements arose, the most notable being whether this era should be characterised by economic growth and prosperity or by recession and decline.[1] However, contention cooled as more research was undertaken, topics on the agenda defined and prioritised, and more manageable chronologies adopted along with a willingness to identify sub-periods and sectors whose characteristics differed in major respects.[2] Confidence has now increased sufficiently to persuade us that we are close to achieving a full understanding of the economy and society of England at the close of the middle ages, and there are distinct signs of a consensus emerging, with optimistic epithets such as 'Economic Growth', 'An Age of Ambition', 'A Golden Age of Prosperity', 'An Age of Transition', 'A Consumer Economy' and 'A New Middle Ages' in the ascendant.

However, a little more probing reveals that there is much that remains mysterious about the era and paradoxical about attempts that have been made to describe and explain it. There is a library of economic, social and demographic theory that tells us what should have happened in the century and a half after the Black Death, but most of it fails to explain what actually happened. Many crucial elements of the pictures that have been drawn do not fit together as they should, and many leading indicators on which great reliance has been placed are very unusual and in some cases contradictory. Attempts to incorporate the later middle ages into long-term models and data sets of economic and social change have also faced formidable difficulties. Much of the economic theory that has been applied to the era is ill-suited to the task because it was designed to analyse modern rather than pre-modern economies and the types of data that illuminate the workings and measure the performance of modern industrial and industrialising economies cannot be extracted with the same confidence from their pre-industrial equivalents.

* * *

Amidst all the uncertainties that remain, however, there is one crucial matter on which for centuries there has been universal agreement: the long fifteenth century was 'a golden age' for the mass of the population. The promethean efforts of a host of compilers of wage and price data have combined to add depth and precision to observations first made by eighteenth-

century political economists, and there is now a massive statistical archive that attests the prodigious levels attained by the wages of late-medieval workers.[3] And these enthusiastic affirmations have been taken to confirm the existence of widespread levels of prosperity unparalleled for a pre-industrial economy. Whether by association, intuition or economic theory, the fortunes of the unskilled have commonly been taken as a reflection of the exalted material living standards of the bulk of the population.[4] Accepted wisdom has for centuries seen this era as characterised by living standards that were so phenomenally high they were not to be equalled until the mid-nineteenth century or even the 1880s, long after the benefits of advanced industrialisation had finally trickled down to the masses.

It is notable that the host of scholars who have diligently laboured in this field have arrived, without exception, at extremely optimistic outcomes. Thorold Rogers, the leading modern pioneer in the collection of price and wage data, was the first to use the term 'golden age', when he concluded in 1884 that 'the fifteenth century and the first quarter of the sixteenth were the golden age of the English labourer, if we are to interpret the wages which he earned by the cost of the necessaries of life. At no time were wages, relatively speaking, so high, and at no time was food so cheap'.[5] The publication 70 years later of the immensely influential Phelps Brown and Hopkins index duly revealed a doubling of the purchasing power of the day wages of urban building craftsmen between the first half of the fourteenth century and the third quarter of the fifteenth, and the most recent contribution, Gregory Clark's computations based on a host of new wage and price data, shows the real wages of agricultural labourers soaring by more than 160 per cent between 1300 and 1349 and the peak reached between 1440 and 1479 (Figs. 9.1 and 9.2).[6]

These are striking rates of increase, but even more extraordinary are the absolute levels that living standards are held to have attained in comparison with those of much later times. As Henry Hallam noted, with the approval of Thomas Malthus, in his *View of the State of Europe during the Middle Ages*, published in 1818:

> *There is one very unpleasing remark which everyone who attends to the subject will be induced to make, that the labouring classes, especially those engaged in agriculture, were better provided with the means of subsistence in the reigns of Edward III [*recte *IV] or of Henry VI than they are at present.*[7]

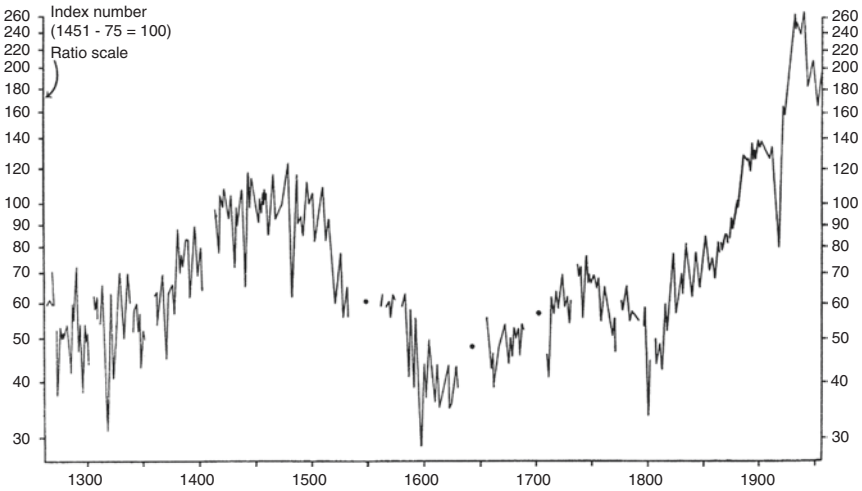

Fig. 9.1 Changes in the equivalent of the wage rate of a building craftsman expressed in a composite physical unit of consumables in Southern England, 1284–1954. (From Henry Phelps Brown and Sheila Hopkins, *A Perspective of Wages and Prices* (1981), p. 19)

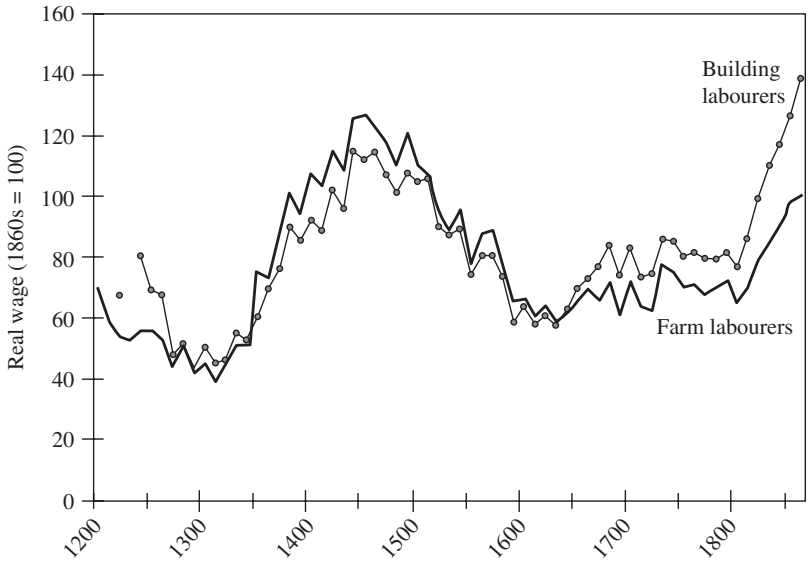

Fig. 9.2 Real agricultural and building labourers' day wages, 1209–1869. (From G Clark, 'The long march of history: farm wages, population, and economic growth, England 1209–1869', *Economic History Review*, 2nd ser. lx, (2007), 109)

It was not entirely unexpected, therefore, that the peak of the Phelps Brown and Hopkins index reached in the later fifteenth century was not to be surpassed for more than 400 years. There have been many adjustments and improvements to this seminal index, as well as a wide range of completely new statistical compilations that span the centuries from the middle ages to modern times, but the broad thrust of the original findings have been confirmed rather than supplanted. Indeed, the close similarities shared by the abundant series of long-run real wages that are now available lend great strength to their credibility. The experience of Clark's agricultural labourers, for example, differs relatively little from Phelps Brown's building workers when the purchasing power of their wages in the 1860s is shown to be still 20 per cent short of the exalted levels their fifteenth-century predecessors had achieved.[8]

Results no less stunning have been produced by reversing the standard statistical computations of what a day's wage would buy by measuring improvements in welfare by the amounts of work required to provide subsistence. Farmer's investigations of the money wages of threshers and reapers show that the number of units of work required to purchase a quarter of wheat and a quarter of barley fell by almost 60 per cent between the first half of the fourteenth century and the 1440s,[9] and Allen and Weisdorf have recently computed that, at the money wages that are assumed to have prevailed in the fifteenth century, an agricultural labourer in southern England would have been able to provide for all his basic needs, and those of a wife and two children, from no more than 200 days' work.[10]

There is, therefore, a centuries-old and disciplines-wide consensus that the living standards of ordinary Englishmen and women at the close of the middle ages were stupendously high for a pre-industrial economy. This chapter will challenge this consensus. It will argue that the towering peak in real wages that dominates the later middle ages in all long-term representations of living standards has been grossly exaggerated, and that it does not represent the course that the living standards of either the landless or the landholding majority followed.

Whereas there is no doubt that the real wages of labourers rose very substantially between the crowded and crisis-torn early fourteenth century and the spacious later fifteenth century, rates of improvement should

not be confused with absolute levels of income. It will be shown that the real wages of the landless and near landless did not soar nearly as high as it has been conventional to believe, and that it is misguided to believe that the rate of improvement in the real incomes of the lower strata of rural society was representative of the experience of the majority, whose fortunes improved far less dramatically. Preliminary modelling indicates that the real incomes of the substantial body of middling peasants with holdings of roughly subsistence size remained relatively stable in the face of dramatic changes in the prices of labour and farm produce, while those of large-scale farmers declined. The golden age of the fifteenth century is in need of a severe dose of debasement.

* * *

Real wages are of considerable significance, not just for the fifteenth century but for all periods of history, and they are ensconced at the heart of almost all major descriptions and analyses of long-term economic, social and demographic development. However, it will be argued here that across much of history the conventional measures used to compute them are ill-suited to their task.[11]

The daily wage rates of workers and the prices of subsistence commodities are almost universally accepted as the data that can best perform the many crucial functions demanded of them. By the simple procedure of converting wage rates and the costs of subsistence into index numbers, and dividing the former into the latter, real wage indices are created that are precise and consistent, as well as abundantly available.[12] They lend themselves admirably to the mapping of trends and fluctuations across centuries and continents and form the basis of comparisons of not merely the living standards but the economic performance of countries.[13]

However, despite their value in facilitating comparisons between economies and across time, there are many reasons why such crude data cannot bear the weight that is routinely placed on them and why their deficiencies proliferate and deepen the further back one goes in history. The most significant failings may be grouped under three main heads: first, the daily wage rates of labourers and craftsmen and the prices of subsistence goods do not constitute a sound basis for measuring the real

incomes of these groups; second, the real incomes of landless or near landless males cannot be used as a surrogate for those of the landholding population at large, for whom daily wages were not the source of all income nor the market the source of all subsistence; third, the incomes of households are far more informative than the incomes of their male heads.

Henry Phelps Brown voiced these reservations. On the first page of his 'Seven Centuries of the Prices of Consumables compared with Builders' Wage-rates' he stated in an unequivocal manner: 'Nowadays, real wages are commonly estimated by comparing money wages with an index of the cost of living, but there are several reasons why we cannot do that here'.[14] He elaborated, 'all we have is the rate of pay for a day, we do not know how many days' work the builder was getting in the year from time to time, nor what other resources he had.…and we know little or nothing about some important costs'. Phelps Brown continued, 'These things apart, we still could not attach much meaning to "the cost of maintaining a constant standard of living" through seven centuries of social change. So we have not tried to construct any measure of real wages in the modern sense'. Accordingly, he took great care never to use the terms 'real wages' or 'real income' for his findings, and instead he composed the following lengthy title: 'Changes in the equivalent of the wage rate of a building craftsman expressed in a composite physical unit of consumables in southern England'.

Yet, Phelps Brown's admonitions have been repeatedly ignored by those who have used and interpreted his index, or amassed similar data to construct new indices.[15] Time and again comparisons of the nominal daily wage rates of labourers and craftsmen with the prices of baskets of basic consumables have been deemed to constitute not just the real wages of those workers but their real earnings over a period of time, commonly a year. Indeed, their annual earnings are often computed by multiplying the daily wage by a working year of 250–300 days.[16] This is not all, implicitly and explicitly the population at large is commonly assumed to have shared the same experience and benefited from the same rate of improvement in real incomes between the early fourteenth century and the later fifteenth. However, Malthus was not measuring the living standards of the average labourer, still less those of the mass of Englishmen

and women, when he compared the money paid to a man for a day's labouring and the price of grain in the fifteenth century with those prevailing in his own day.[17] He was merely computing the quantity of food that a day's labouring at that wage would purchase, and that is precisely what Gregory Clark's newly-produced series of farm labourer's wage rates and living costs does. The sources Clark is forced to use over the greater part of the period his series covers are the same as those available to all other price and wage historians, and they do not reveal how many days in each year the average labourer was employed at these rates, or what other sources of income and subsistence he might have had. There is also the vexed question of whether, when and how much food and drink labourers received at work.

At first sight, the real value of the pay received for a day's work in the later fifteenth century might well appear comparable to that pertaining in the 1880s. But earnings are what really matter. A true comparison must take into account the number of days worked in the two periods, and there can be no doubt that this differed substantially. The labour market in the late middle ages, and indeed throughout the early modern centuries, offered far less regular employment than was to be the case subsequently when the great bulk of the population worked in non-agricultural occupations and the majority of those that remained in the countryside were employed on large farms.[18] In pre-modern times, paid employment in the countryside was characterised by its intermittent and piecemeal character: the changing routine of the seasons of the farming year combined with uncertain weather to cause wide fluctuations in the demand for labour and produce short-term and discontinuous working, and this inherent irregularity was accentuated by the fact that both the demand for labour and its supply came overwhelmingly from the occupiers of relatively modest farms. It is particularly regrettable that there is little or no useful information on the terms and conditions on which peasants hired each other because the likelihood remains that much work was undertaken between people in the same village using swap arrangements rather than cash payments.

In the fifteenth century, access to land was unusually easy and the proportion of landless in the adult rural population was unusually low. The great bulk of the farmland of England was distributed in relatively small

parcels among households that primarily used family labour to farm them, and if these households needed to hire additional labour, or had spare labour to market, they bought and sold it on an intermittent and short-term basis. The proliferation of large farms and the rise of an involuntary landless proletariat that came to dominate the agricultural landscape had yet to get under way. Relatively few villagers possessed lands that were sufficiently extensive to make it worthwhile hiring labour on a continuous and full-time basis, and those that did appreciated that their needs could be served better and more cheaply by servants hired by the year and remunerated with a combination of food, lodging, clothing and cash rather than by labourers hired by the day.

As far as the construction of a reliable wage series for the fifteenth century is concerned, it is particularly unfortunate that information has to be compiled exclusively from the demesne accounts of great institutions when by far the greater part of labour was hired by peasants and lesser lords. Not only were these institutions unusually inflexible employers, they progressively abandoned direct farming, so that by the 1440s the sample of accounts supplying data is tiny.[19] There are also serious problems with the most dominant constituents of the agricultural wage series—payments for harvest work and for threshing and winnowing grain. These tasks were chosen because they are well-recorded and strictly defined, but they are also untypical and problematical. Harvest work was paid exceptionally well, commonly at double the winter wage, but such employment lasted for only a few weeks a year, while threshing and winnowing constituted only a tiny proportion of labour inputs in agriculture. Even on the largest seigneurial farms with expansive arable acres, threshing, and winnowing the whole crop of grains and legumes rarely took more than the equivalent of the annual labour of a single man. Moreover, remuneration for this task was both lower and far more variable between manors than it is usually portrayed, and those that performed it were commonly paid by the piece rather than by the day.[20]

The daily wages paid for casual work during the slack periods of the year are of great significance but, unfortunately, this is when the great demesnes normally used their servants rather than hired labourers and the available data is consequently sparse, disparate and poorly suited to inclusion in statistical tables. However, there is a body of robust detailed

empirical evidence, much of it drawn from extremely informative farm accounts of lesser lords, that convincingly undermines the current wage series by demonstrating the prevalence of far lower rates of pay and the scarcity of employment for casual labourers during the dominant slack periods of the year. Poos's detailed and resourceful analysis of the labour market in late fifteenth-century Essex, which he characterises as 'highly episodic and discontinuous', is a particularly enlightening case study.[21] Unusually informative records reveal that the great bulk of the work running William Capell's 300-acre mixed farm at Porter's Hall, Stebbing, in 1483–1484, was performed not by wage labourers but by 11 year-round servants, who were paid modest cash stipends ranging from 3s 3d to 22s 3d in addition to their board and lodging. Almost two-thirds of the days worked by the labourers hired at Porter's Hall took place during the few weeks of harvest, when the males were richly rewarded with 4d per day and food. During the rest of the year, however, tasks such as sowing, weeding, ditching and harrowing required the hiring of far less labour and were remunerated at only 1–2d per day. Significantly, in the light of the heavy weight contributed by wages for threshing and winnowing in the series that estimates an average wage of 3.55d per day at this time,[22] the four men who performed these tasks at Porter's Hall earned an average of only 1.6d per day and laboured for only 51 days between them. Overall, the mean employment of the male labourers hired during the year on this farm amounted to just 7.8 days and their mean earnings to 24d. Of course, the records of a single large farm can give only a partial picture of the demand for labour in the region, and most of the labourers hired at Porter's Hall must have found some additional employment elsewhere. However, Poos augments the intermittent employment and modest earnings of the labourers, cottagers and servants revealed by the Porter's Hall accounts with complementary evidence from proceedings under the Statutes of Labourers and in wills and tax assessments.[23]

Such informative documentation is rare but not unique, and other sources attest to the prevalence of relatively low wages. On the Newton demesne in Cheshire at the turn of the fifteenth and sixteenth centuries, for example, casual labourers often received only 1d per day for unskilled work and harvest workers were paid merely 2d, and the same niggardly sum was paid to harvest workers at Millom in Cumberland. The Newton

accounts, like those of Porter's Hall, reveal a heavy reliance on servants employed on contracts, the cash element of which for males ranged from just 5s to 13s 4d.[24] The archive of Durham Priory, which contains the names of employees, has enabled Christine Newman to complete a detailed study of workers and wages at the priory and its estates from 1494 to 1519, and she tells a similar story of brief, irregular and piecemeal hirings. Despite being by far the largest institution in the region the priory offered substantial employment to very few. Newman's conclusion is that the golden age for labour was tarnished, for it did not have a 'labour market characterised for most people by fixed employment, settled patterns or predictable career prospects'; most of the time workers were taking what they could get, which did not amount to much.[25] This pessimistic view is shared by many other researchers, paradoxically including those who have compiled statistics that paint a far more optimistic picture.[26]

There are also special concerns about the authenticity of the summit of later medieval real wages which, according to almost all the series, was attained from c.1440 to c.1479. For this was a time when the country was in the throes of a deep and prolonged slump and the agrarian economy was enduring a most savage retrenchment. It is well-known that large-scale farmers faced severe problems from falling commodity prices and rising wages in later middle ages and that these led to the abandonment of demesne farming by landlords, frequent chronic indebtedness of entrepreneurs who ventured to lease abandoned demesnes, a shift towards pastoral husbandry and the relative scarcity and short-lived duration of large-scale peasant farms. In the mid-fifteenth century, these adverse conditions profoundly worsened and engulfed substantial peasants and aspiring yeomen as well as the greater and lesser lords.[27] It is not surprising, therefore, that the main driver that sent the already elevated real wage index even higher at this time was a further sharp fall in the prices of farm produce rather than a rise in money wages. More than this, there is evidence that the severity of the slump was reducing the demand for labour and driving employment and pay down.[28]

Thus, there is no substance in the belief that the average agricultural labourer in the fifteenth century was able to find employment for around 250 days a year at the exalted wage rates recorded in various published

series. Few labourers were able to find work whenever they sought it, or accepted it whenever it was offered, and it is unwise to assume that all of the work that was available was paid at the extremely favourable rates recorded in the published series. In the unlikely circumstance that a labourer was able to enjoy full employment at the 3.5–3.7d recorded in the Clark index, this lowly member of peasant society would have received an annual income of around £4, which is substantially higher than that of a senior full-time estate bailiff, who was paid a maximum of 60s annually, and only 20s or so below the declared taxable income of the majority of Warwickshire gentlemen in 1436 or the sum paid to the steward of the prior of Durham, who was a member of the gentry.[29] But, even more significantly, such optimistic assumptions would have led to the perverse result that peasants could consistently earn far more from casual labouring than they did from working on their own land.

* * *

The calculation of the income tenant farmers received from working their own lands avoids many of the uncertainties and complications that dog attempts to estimate earnings from wages. If the calculation is restricted to arable alone it is able to rest on unusually robust data and non-controversial assumptions, for whereas real wage series cannot capture the participation rate or the earnings of either landless labourers entirely dependent on wages for their sustenance or the common run of peasant farmers who intermittently engaged in casual work, the physical output of an acre of arable farmland and its monetary value can be estimated with a considerable degree of accuracy, as can the number of days required to cultivate it. Of course, in practice there were no exclusively arable farms and farm labour was shared between growing crops and raising livestock, but the quality of the data and the robustness of the results make this theoretical exercise worthwhile, and for the purposes of illustration it will be based on the cultivation of crops on 20 arable acres, of which a generous 15 acres are assumed to be under cultivation each year. Focussing on the period from 1450 to 1479, and using the distribution of crops given in Campbell's medieval crop yields database, it is assumed that 5.7 acres of the 20 acres were under wheat, 4.8 acres under barley and 4.5

acres under oats, with the remaining 5 acres left fallow.[30] Mean yields, net of seed, have been derived from the same database, and the selling prices of grains have been taken from Farmer's series in the *Agrarian History of England and Wales, 1348–1500*.[31] Together these data tell us that on average the gross value of an acre of wheat was 5.8 s, after reserving seed for the following year, an acre of barley was worth 4.8 s and an acre of oats just 1.8 s. Thus, the total wheat crop would have been worth approximately 33 s, the barley crop 23 s, and the oats crop 8 s, giving a combined sale value of 64 s for the produce of the 20 acres. From this sum it is necessary to deduct rent and other seigneurial dues, estimated at 10s per annum, with a further 4 s allowed for additional costs arising from the depreciation and maintenance of farm equipment, the costs of milling and suchlike. This gives a net average income of 50s per annum from the 20 acres, before payment of tithes.

Meticulous calculations of labour inputs on the arable land of demesne farms by Karakacili and others indicate that from 10 to just under 14 days annually were spent on each acre, including the fallow.[32] A relatively high figure of 13 days has been adopted for these calculations, since peasants were likely to have invested more labour on their own holdings than did demesnes. Thus, our theoretical peasant farmer would have expended a total of 260 days working his 20 arable acres, which is conveniently close to the assumed full working year of an adult male, and each day worked would have brought him 2.3d.

This is a strikingly low figure, and if tithes are deducted from the crops the farmer's earnings would fall to just over 2d per day, which is not much more than half the wage commonly attributed to casual labourers.[33] Such a pronounced difference between the relative rewards of farming and casual labouring are very difficult to explain and would have been very difficult to sustain in practice. Apart from the fact that farmers would have been reluctant to pay labourers more than they added to the value of the output of the farm, any such gap ought to have been swiftly narrowed by a flow of labour from farming into labouring, which would have been relatively easy to achieve since the great bulk of the rural population commonly combined working for themselves with working for others.[34]

This is not all. Yet further doubt can be cast on the validity of common assumptions about wages and the availability of employment in the late middle ages by using the same methods and data to estimate the profitability of commercial arable farming. If all the conditions for the operation of the notional 20 acres are held constant, excepting that now it is cultivated entirely by hired rather than family labour, the operation would have produced an average annual loss of around 30s between 1450 and 1479, before deductions for tithes. The prime reason for this dismal performance, of course, is the high imputed cost of labour. Even at a very low ten day's labour per acre with no reduction in yields, the wage bill would have virtually matched the receipts from selling the complete crop, net of seed. While in practice temporary grazing on the arable would have been of some value to the farm livestock it would have fallen far short of that needed to meet the additional costs of rent, seigneurial dues, milling, capital depreciation of farm equipment, tithes and so on.

Part of the solution to the paradox these speculations have thrown up is, of course, that few farmers paid wages at these exalted levels outside of the busiest times of the year, and that those like William Capel who had ongoing needs for additional labour hired servants on long-term contracts. The rewards and conditions of service that such servants in husbandry, called *famuli*, received provide a further opportunity to place the reputed wages of day labourers in a broader context, and once again it is sobering. For, rather than soaring in the manner that is claimed for the wages of casual labourers, 'in the later middle ages the condition of the famuli was inconsistent but [only] gradually improving'.[35] Although information becomes ever scarcer as the fifteenth century wears on, we may be confident that the earnings of such servants were only a small fraction of the approximately 75–80s a year that a labourer might have earned if he had been able to find continuous employment at the reputed 3.5–3.7d per day. While the annual remuneration in cash and kind of a very few highly paid servants with full-time duties might reach 50s, which equates to around 2.25–2.5d per day for a 250–260 day working year, as we have seen, the great majority of servants were likely to have received a small fraction of this.[36]

* * *

The seductive charms of readily available sets of measures that are informative, continuous, internally and externally consistent, and capable of spanning the centuries from the middle ages to the present day, as well as many countries of the world, has meant that far too much attention has been devoted to attempting to calculate the real wages of landless male casual labourers rather than of those of the great majority, who were landholders and self-employed artisans. The collection of daily wage rates and the prices of a few basic commodities is also far less problematic than trying to estimate GDP per head by extrapolating national income accounting backwards into the past alongside estimates of population size, and in addition the results can be expressed in far simpler terms via the experience of a single worker. But it far from certain that real wage indices are a more reliable method of estimating living standards. The prospect of being able to draw broad conclusions from the purchasing power of a day's wage has led to a systematic neglect of the limitations of wage and price data and of the realities of the economies from which they have been drawn. Not only do these failings compromise attempts to measure the incomes of full-time labourers, who were a comparatively small section of late medieval society, they vitiate endeavours to extrapolate projections of the movements of the real wages of labourers to the whole population. While labour economics might state that 'the material living standard of the bulk of the population will be determined by the purchasing power of the wages of unskilled workers',[37] the validity of this proposition is dependent on the existence of modern highly developed labour markets which possess a host of characteristics that did not exist in fifteenth-century England or for a long time afterwards.[38]

Because the majority of households held land, and consequently did not derive their incomes solely from wages or their subsistence solely from the market, the scale and nature of their income and expenditure varied in accordance with a far broader and more varied range of factors than those conventionally used to determine the welfare of labourers. Most obviously, the price of foodstuffs, predominantly grain, has a massive impact on calculations of the real wages of the landless, because food constituted by far the biggest part of their expenditure, but in the real

world the great majority of those who laboured for wages also held some land and engaged in the self-supply of foodstuffs.

At the risk of stating the obvious, the stratification of rural society is of crucial importance in determining average real incomes in the fifteenth as well as in subsequent centuries. For, not only did rural households farm widely varying amounts of land for which they paid varying sums in rents and other dues, they practised diverse forms of agriculture, supplied differing proportions of their own subsistence, and had streams of income that varied in scale and source. All this, and much more, meant that villagers were affected in profoundly different ways by the dramatic changes that occurred in the relative prices of labour, food and land in the later middle ages. The robust estimates of the level and distribution of incomes must await the collection of the best data and rigorous modelling, but what can be done now with relative ease is to test current assumptions by undertaking some rough and ready projections.

Table 9.1 presents some rudimentary estimates of the fortunes of a range of representative tenant farmers derived from widely accepted and respected data using apparently reasonable methods. For ease of construction and transparency of method, the modelling has been based on an amended and adapted version of the framework established by Kitsikopoulos for households farming 18–20 acres in England before the Black Death of 1348–1349.[39] The table is structured largely in the form of a comparison between the first half of the fourteenth century and the

Table 9.1 Estimates of the economic performance of peasant households using conventional wage data

Real income				
	before 1348–1349	1450 to 79	Increase in net	Surplus/Deficit
	(a)	(b)	income (a–b)	income 1450–1479
Landless males	100	239	47s	39s
5 acres	100	220	38s	32s
10 acres	100	188	27s	23s
18–20 acres	100	110	5s	2s
36–40 acres	100	69	(45s)	(35s)

three decades from 1450 to 1479. The range of landholding sizes portrayed, including the landless, probably captures in excess of 90 per cent of the rural population and over three quarters of the total population. The economic performance given in columns (a) and (b) has been measured in the conventional manner by estimating the income and expenditure of the household, converting these estimates into index numbers and assigning the value of 100 to the period before the Black Death.

Family farms were effectively small businesses practising a mix of arable and pastoral husbandry. The sources and amounts of income and the costs of basic subsistence and of running the holding were modelled by making estimates of the following:

(i) the net yields of the arable acres that were cultivated (after making allowances for seed corn and tithes) and the quantities of dairy produce and meat produced by the livestock. The yields of grain and livestock were kept constant, both between farm sizes and between periods.
(ii) the quantities of grain, dairy produce and meat consumed by households, and, if purchased, the cost of these and other basic subsistence items. Levels of consumption of these items been deemed to be the same for each household, regardless of holding size or period.
(iii) the net amount received from the sale of agricultural commodities or spent on their purchase.
(iv) the amounts paid out in rent and other seigniorial dues, and the costs of all necessary expenditure on the farm, its equipment and its livestock. These amounts have been varied according to holding size and period.
(v) the earnings received by the household from labouring or the sums paid to hire labourers.

For the purposes of modelling, each household is assumed to have had 260 days of labour to expend annually on its own holding or working for wages. An average of 13 days of labour is assumed to have been expended on each acre of land held. Following Clark, all labour is assumed to have been employed or sold at 1.5d per day in the early fourteenth century and 3.7d per day from 1450–1479.[40]

It can be seen at a glance that Table 9.1 contains much that is seriously at odds not only with prevailing assumptions about the fifteenth-century agrarian economy but with common sense and rational economic outcomes. For example, is it likely that all those who farmed land received substantially lower real incomes than those who, in Langland's memorably contemptuous phrase, 'have no land to liven of but their own hands', or that the more land a household farmed the more its surplus income shrank? Is it plausible that cottagers with around five acres enjoyed surplus incomes 16 times higher than those accruing to farmers with around 20 acres? To repeat, Table 9.1 is based on widely-used data held in high repute to which commonly accepted and not obviously defective methods have been applied, but clearly something is amiss with an economy that produces such a state of affairs, or, more likely, with our reconstruction of it.

At first glance, the rates of change in real incomes between 1300–49 and 1450–1479, given in columns 1 and 2, might appear superficially less troubling than the incomes themselves given in columns 3 and 4. Other things being equal, the benefit that households derived from the movements that took place in farm costs and revenues during the later middle ages might be expected to vary inversely with the amounts of land that were held. The condition of the poorer strata in society should have improved the most, since the landless and near landless would have enjoyed the quadruple boon of rising wages, increased employment opportunities, falling food prices and easier access to cheap land. Higher up the landholding scale, however, those with more acres to cultivate had fewer days available for working for wages and, eventually, as the acreage farmed by a household came to exceed what could be worked with its own resources, labour needed to be hired rather than sold and high wages turned from a benefit into a cost. At the same time, the amounts of food that a household needed to purchase declined with each additional acre it farmed, until increasing acreages eventually resulted in agricultural surpluses for sale. Yet, because those surpluses fetched less in the fifteenth century than they had before, the incomes of large farmers, particularly those who concentrated on the growing of crops, were harmed by precisely the same price movements that benefited the landless.

However, there would appear to be no plausible explanation for the absolute levels of income reported in the final two columns of the table. While there are a number of premises underlying this table that might be in need of some modification, by far the most powerful drivers of eccentricity are, once gain, conventional assumptions about wages and work: namely that work was freely available throughout the year at around 3.7d per day, that all the assistance hired by employers cost around 3.7d per day, and that those who had spare time devoted it all to working for hire. It is these deeply ingrained beliefs that have the primary responsibility for generating the bizarre patterns of income reported in columns 3 and 4, just as they have prime responsibility for the twin conclusions, spelt out above, that a late-medieval peasant earned almost 50 per cent more from time spent working for wages than he did from cultivating his own arable land, and that farmers regularly paid wages that were far in excess of the marginal productivity of the labour they hired.[41]

Table 9.2, based on revised wage data, starkly demonstrates how acutely sensitive household budgets throughout the landholding spectrum were to adjustments in wage rates and the number of days worked. Whereas in Table 9.1 the unrealistic assumption was made that each household received income from the full balance of the 260 days of labour that was left after cultivating its own holding at the rate of 1.5d per day in the early fourteenth century and 3.7d per day from 1450 to 1479, in Table 9.2 the number of days worked for wages is estimated to

Table 9.2 Estimates of the economic performance of peasant households using revised wage data

Real income				
	before 1348–1349	1450–1479	Increase in net	Surplus/Deficit
	(a)	(b)	income (a–b)	income 1450–1479
Landless males	100	191	17s	(4s)
5 acres	100	165	16s	2s
10 acres	100	150	14s	6s
18–20 acres	100	110	5s	2s
36–40 acres	100	87	(15s)	(5s)

have been significantly less than the maximum. In addition, in the latter period rate of pay is assumed to be 4d per day at peak times but only 2.5d per day for the rest of the year, resulting in an average wage of 2.7–2.8d per day rather than 3.7d.[42]

As can be seen, the revisions incorporated into Table 9.2 produce dramatic changes in both the absolute and relative incomes of the various landholding strata. There is a marked reduction in the gains of the landless and smallholders at the bottom, who no longer enjoyed incomes far in excess of those with more acres, and an absolute as well as a relative improvement in the fortunes of the larger landholders.

These new outcomes are patently less implausible than those depicted in Table 9.1, but they are in need of substantial further adjustment. However, while precision must await extensive research and comprehensive modelling, certain deficiencies can immediately be identified, of which the most significant have led to an understatement of income for all strata. Most importantly, the model adopted for the construction of both tables takes no account of income earned by female members of households from casual labouring and from home-based crafts or ale-brewing, which was significantly higher in the latter period.[43] The allowance made for the range of subsidiary incomes that could accrue to landholders, especially from subletting acres or accommodation, is also inadequate. Moreover, although there can be no denying that the economic environment for farmers with surpluses to sell had been far more favourable in the era of cheap labour and expensive food that prevailed in the early fourteenth century, the model lacks the flexibility that later medieval farmers displayed when they used servants rather than day labourers, adopted new methods, expanded pastoral husbandry at the expense of arable and hired out assets such as pasture, carts and ploughs.

It must be stressed, however, that although such necessary adjustments would undoubtedly bring estimates of income closer to reality by increasing them, it is difficult to see how any reasonable assumptions could have the effect of raising the net profits of the great majority of households by anything like the 100–150 per cent that is claimed for the real incomes of labourers. Indeed, in addition to the certainty that the profits of the majority of large farmers declined significantly there is the strong probability that the incomes of classic subsistence farms of 15–20 acres, a

common size in the fifteenth century, could not have changed dramatically over time. The reason is obvious, for such farms were by their very nature geared towards self-sufficiency, which meant that they engaged relatively little in the market: their food output was likely to match the consumption needs of the family that farmed it and the labour required to work the farm they held was likely to match the resources the family could supply. Thus, while the 10 per cent increase in income for signalled in both of the tables for these middling landholders is almost certainly on the low side for the reasons given in the preceding paragraph, the actual figure is unlikely to have been substantially greater. Overall, the inevitable conclusion is that far too much affluence has been claimed for the fifteenth century.

* * *

The fallacy that average real incomes in the later fifteenth century were as high or even higher than they were to be in the mid- and later nineteenth century is further exposed by the stark contrast between the structure of the economies of the two periods. Whereas the empirically generated income and expenditure patterns found in Victorian England are entirely compatible with the highly industrialised, urbanised and commercialised nation of that time, the similar income and expenditure patterns conjectured for the fifteenth century are entirely at odds with an economy in which the urban, commercial and industrial sectors were stunted.[44] In the later nineteenth century, no more than one in four persons was employed in agriculture, whereas large-scale research into late medieval occupational structures is confirming that well over 60 per cent of the total workforce regularly found employment in agriculture and closely associated activities, and a recent investigation has concluded that the proportion of the population living in towns probably declined in the late middle ages.[45] The sharp contrast in occupational structure is, of course, accompanied by an even more dramatic difference in the range and quality of the goods and services available at the two dates.[46]

While it is possible that there was some overall growth in the consumption of manufactures, non-essential items and services relative to the depleted size of the late-medieval population, there is nothing to indicate

that there was a revolutionary expansion of consumption. Quite simply, the urban, industrial and commercial sectors of late medieval England contain no evidence of the impact that real wages at 'extraordinarily high levels' would have had.[47] The lower social strata were the main beneficiaries of the transformation in the relative scarcity of labour and land, but it is important not to confuse the pace of improvement in their welfare with the absolute levels of income they received. By universal agreement, the early fourteenth century was a time of deep poverty when well over half of the population were landless or lived on inadequate smallholdings,[48] and even very substantial improvement would have left much smaller amounts of disposable income in the pockets of the labouring poor of the fifteenth century than it has long been accustomed to assume. Moreover, it is likely that they spent the greater part of the increased purchasing power they enjoyed on subsistence items rather than genuine consumer purchases: more and better food and drink, including meat and dairy produce; higher quality bread and ale; more fuel and lighting; and, of course, the freedom to choose when to work and when to spend time and money on leisure and in the alehouse.[49] Naturally, even the households of labourers and cottagers often had some money left over for clothing, furniture, bedding, tableware, cooking pots and the occasional even more frivolous acquisition, as moralists of the age never tired of claiming. But, the labouring poor simply did not have enough purchasing power to generate a genuine consumer revolution, especially as the consumption of manufactured items was dampened by the fact that their prices rose substantially while those of farm produce fell.[50] Accordingly, local markets reveal a proliferation of butchers and bakers but scant trace of trade in luxuries and semi-luxuries.[51]

* * *

The case has been made in this chapter that the projections of real wages across seven centuries and more that have for so long been deeply embedded in the historiography do not represent accurately the levels and fluctuations in the incomes of the workers they are meant to record, still less those of the population at large. Most of the criticisms made in this chap-

ter of the way in which real wage indices have been compiled, interpreted and applied have implications that stretch far beyond the fifteenth century.

It needs no stressing that living standards are a key concern of social and economic historians and used as one of the most powerful indicators of the character and performance of economies, or that real wage data loom very large in attempts to put dimensions to such crucial issues as the nature of pre-industrial and developing economies and the welfare of their inhabitants, the progress of the industrial revolution and the distribution of its fruits, and historical comparisons between the economic development of England and other parts of Europe and the wider world.[52] And, of course, since well before Malthus living standards have been the lynchpin of explanatory frameworks for demographic behaviour.[53]

More than this, real wages are the central pillar of one of the most powerful and enduring tenets in economic history, namely that the history of the world has been divided into two phases. The first phase, termed Malthusian, persisted until the nineteenth century and is characterised by the lack of any long-run trend in real wages. As can be seen from Fig. 9.1 above, and from a multitude of similar representations, there is no sign of any secular trend towards higher living standards before the industrial era. Instead there was overall stagnation, punctuated by wide swings that were linked to rising and falling population. The explanation for this stagnation is the so-called Malthusian Trap, within which high real wages and gains in efficiency were inevitably channelled into population growth, which in turn undermined prosperity. Thus, it was only when the industrial revolution was well under way that the Malthusian cycle that characterised the first phase was finally broken and both real wages and population were able to rise together.[54]

The unparalleled height of the late medieval peak in real wages is a crucial component of this grand and enduring framework, and this and the precipitous plunge that occurred over the ensuing century and a half were by far the most pronounced of the swings that occurred between the 1200s and the 1800s. If, as has been argued in this chapter, the height of the late-medieval peak and the steepness of the subsequent early modern plunge are drastically reduced, much of the power of the overarching

two-phase stagnationist exposition would be lost. In fact, a different picture would emerge and a different model would be required to account for it. As has been argued above, it can be predicted with some confidence that the vertiginous oscillations we see in the conventional series based solely on estimates of the fortunes of the landless will be substantially moderated by the inclusion of the countervailing forces from incomes of other social and occupational sectors. It is also likely that across the centuries a discernible rising trend in average real incomes will emerge.[55]

The long-term course of the real incomes of whole societies cannot be represented by any particular group, since shifts in key indices such as population, prices and wages affected different groups in markedly different and often contrary ways. It is equally true that the huge shifts that took place in the distribution of land and resources over time could be at least as important as fluctuations in wage rates. The bulk of the data on the distribution of land recorded in later fourteenth and fifteenth-century manorial rentals, surveys and extents scattered throughout England has yet to be systematically collected and analysed, nevertheless there is no doubt that as the population plunged the average number of acres per head rose sharply, the proportions of the landless and near landless fell steeply, possibly from as much as two-thirds before 1349 to well under half in the later fifteenth century, and the proportions of households farming holdings of subsistence size and somewhat higher increased significantly.[56] Therefore, in order to provide reliable national estimates for the late middle ages not only do the rising real incomes of labourers and smallholders have to be set against the relatively inflexible incomes of subsistence farmers and the falling real incomes of large farmers, the changing proportions in each category have to be taken into account.

All the conventional indices signal that real wages plunged precipitously for most of the sixteenth and early seventeenth centuries as the gains the lower strata made in the preceding era were severely eroded. However, as William Harrison explained with great clarity in the mid-1570s, rising agricultural prices and the falling real cost of labour meant that many farmers and husbandmen were far better off than their predecessors had been despite the substantially higher rents that they paid. Harrison helpfully related the rising incomes of the middling and greater

sort directly to a markedly increased consumption of the sorts of goods that feature in the progressively richer and more varied household inventories that have so perplexed historians who would only follow the rapidly deteriorating fortunes of landless adult males.[57]

As the economy subsequently became progressively more developed and differentiated, the occupational structure was decisively altered and along with it the levels of incomes enjoyed by its constituent parts. The provision of robust genuinely national measures of long-term changes in real incomes will therefore necessitate estimating not only the household budgets of all significant occupational groups but the relative size of these groups. In other words, it will involve an exercise not dissimilar to that undertaken by Gregory King when he created his social tables in the 1680s. This will be a far more complex and less precise undertaking than simply recording wage rates and the prices of subsistence goods, but however tentative the findings it produces they are certain to provide a more accurate measure than the crude real wages on which we have for so long placed so much reliance.

Postscript

The conclusions of this essay have received substantial support from major new research since its publication in 2012. Most notably, the massive quantitative enterprise on British economic growth, conducted by Broadberry, Campbell, Klein, Overton and van Leeuwen, shows that Gross Domestic Product per head rose far less in the later middle ages than the vertiginous rise signalled by the traditional real wage data, and the authors conclude that 'the daily real wage rates of adult males were particularly "unreal"' during the post-Black Death 'golden age of labour'.[58] With similar implications, the substantial database assembled by Humphries and Weisdorf demonstrates that the remuneration that was actually paid to farm servants working on annual contracts was but a small fraction of the amounts that have been conventionally presumed to have been routinely earned by casual labourers each year. The implausible disparity revealed between the two series has led the authors to conclude that 'the post-plague "Golden Age" glittered much less brightly than esti-

mates of yearly income grossed up arbitrarily from day wages suggest, a finding that agrees with John Hatcher's reference to previous estimates of day workers' annual incomes as "unreal wages"'.[59]

However, the essay reprinted above has also been subjected to negative criticism by Christopher Dyer, who confidently proclaims by the title of his condemnatory essay—'Golden Age Rediscovered' —that he has roundly refuted the evidence and arguments it puts forward.[60] In the body of his essay Dyer defends the traditional view that casual male agricultural labourers at this time gained superlative real wages by working for 240–250 days a year at around 4d per day, despite the fact that this would have meant their annual incomes would have equalled those of many of the minor gentry and the higher officials who managed the estates of the nobility. Dyer bases his case almost entirely on a small, highly selective sample of wage payments drawn from the pages of Thorold Rogers and a sprinkling of demesne accounts scattered across England and the whole of the fifteenth century. Strangely, Dyer makes scant use of Gregory Clark's substantial database of agricultural labourers' wages or of the elaborate methodology Clark uses to justify his conclusions. Dyer's low-powered approach to quantification when dealing with matters where measurement and statistics are essential allows him to avoid confronting any of the major empirical, conceptual or methodological issues that challenge the credibility of the assumptions he espouses. Conspicuously, he makes no attempt to demonstrate the validity of his claim that there was such an abundance of casual farm work available at premium wages throughout the year that annual incomes of £4 or more were on offer to any landless labourer who sought them. As a specialist in the details of village life, it is a pity that Dyer does not enlighten us as to precisely how hordes of mobile labourers, who were commonly hired for only a few days at a time, would have had access to the continuous flow of up-to-date information required to find sufficient employment to fill all the days of all their working weeks with a constantly changing succession of farmers who, of necessity, must often have been located in a scattering of other villages. Given the shortage of small coinage in circulation, an explanation is also required of how labourers would have managed to secure prompt payment for their services in cash.[61]

Had Dyer engaged in more rigorous analysis he would have found it difficult to brush aside the voluminous original and secondary literature that documents the long slack periods of each farming year, when the demand for casual labourers and the wages they received were severely restricted because the bulk of such farm work as was required was performed by family members on smaller farms and servants on annual contracts on larger farms. Harvest work was worth 4d a day and generous free food and drink to many farmers, although not all, because of the boon of gathering in the grain at the optimum time, but picking up stones, spreading manure or clearing ditches when labour was plentiful in midwinter was not, which is why wages of 2d a day or even less were common out of season. However, Dyer refuses to engage with the prolific evidence of wages well below 4d per day, some paid at harvest time as well as in winter, a small sample of which were provided in the article he is attacking. Had he not done so he would have found it difficult to explain why, to give just one further example, Thetford priory, Suffolk, routinely managed to hire sufficient casual threshers, ploughmen, muck-spreaders and other workers in the late fifteenth and early sixteenth centuries when paying them only 2d per day and commonly offering them only a few day's work at a time.[62]

Dyer needs to adopt a far more sophisticated methodology if his claim to know what the average casual labourer would have been able to earn had he offered himself for work throughout the year is to be taken seriously, and this would involve engaging with the issue of how much work was available and at what pay during all the weeks of the year. Merely adding up the enhanced daily wages found in a sample of entries dominated by high-season employment offered by great landlords will not suffice.

Of course, Dyer is also misguided in placing his trust in the ability of daily wage rates to reveal the annual incomes of farm labourers when the great majority of them did not work exclusively as full-time labourers but combined labouring with farming their own lands and livestock. Moreover, if he had considered the economics of fifteenth-century farming, he would have found that wage levels throughout the year of anything like his claimed 4d a day were simply unsustainable. The modelling of farm budgets conducted in the article he denigrates indicates that the

low grain prices for which this period is renowned meant that farmers using hired labour costing around 4d per day throughout the year would have lost money running the arable side of their operations. Indeed, if labourers had been able to earn 4d a day year-round, they would have gained approximately twice as much as they would have from spending all their time farming their own land. Some consideration of labour productivity and a basic acquaintance with marginal product of labour theory would have helped him here.

However, Dyer's faith in his case does eventually wobble when he is faced with the conundrum of the very low rates of pay received by the vast numbers of farm servants employed on annual contracts, whom he concedes generally earned no more than 2d per day and often as little as 1d. This causes him to admit that 'some cautious workers were willing to take low rewards in exchange for a contractual guarantee of continuous employment'.[63] But this reluctant concession does little to prepare the reader for the total capitulation executed by Dyer in his final sentence when he baldly declares, against all his previous arguments, that '"Golden age" is an exaggeration and encourages us to think in clichés'. He then ends his piece with the resounding cliché that 'improved living conditions for the lower ranks of wage earners was a memorable characteristic of the late medieval economy'.[64] This is exactly the type of vague platitude that the essay he is attacking sought to define and refine by judging that the incomes of the landless and smallholders probably rose by 80 per cent or more between the crowded and crisis-torn early fourteenth century and the spacious later fifteenth century, the fastest rate of any major social stratum, and that this occurred because they 'were the main beneficiaries of the transformation in the relative scarcity of labour and land' and 'enjoyed the quadruple boon of rising wages, increased employment opportunities, falling food prices and easier access to cheap land'.[65] Nowhere in the above essay is there anything to justify Dyer's inversions of the truth when he asserts that 'Hatcher paints a bleak picture of the wage earners' world' and believes that peasants would have 'found it difficult to pay any wages at all'.[66] Sneers and misrepresentations are no substitute for competence and probity, and while the motives that drove Dyer to launch his criticism remain obscure, his failure to substantiate it is all too evident.

Notes

1. Most notably the differences of interpretation between M M Postan ('The fifteenth century', *Economic History Review*, 9, 1939 and 'Some economic evidence of declining population in the later middle ages', *Economic History Review*, 2nd ser., ii, 1950) and A R Bridbury (*Economic Growth: England in the Later Middle Ages*, 1962).
2. For notable recent contributions to this field by Richard Britnell see: *The Closing of the Middle Ages? England 1471–1519* (Oxford, 1997); Daily Life in the Late Middle Ages (Stroud, 1998); *Britain and Ireland 1050–1530: Economy and Society* (Oxford, 2004).
3. For England see, for example: J E T Rogers, *The History of Agriculture and Prices*, vii volumes (Oxford, 1866–1902); W H Beveridge, *Prices and Wages in England, vol 1: the Mercantilist era* (1939); E H Phelps Brown and S V Hopkins, 'Seven centuries of building wages' and 'Seven centuries of the prices of consumables, compared with builders' wage-rates', *Economica*, 23, 87 (1955) and *Economica*, 23, 92 (1956) reprinted in Henry Phelps Brown and Sheila Hopkins, *A Perspective of Wages and Prices* (1981); D L Farmer, 'Prices and Wages', in H E Hallam (ed), *Agrarian History of England and Wales, ii, 1042–1350* (Cambridge, 1988), pp. 716–817; D L Farmer, 'Prices and Wages, 1350–1500′, in E Miller (ed), *Agrarian History of England Wales, iii, 1348–1500* (Cambridge, 1991), pp. 431–525; John Munro, 'Prices and Wages' in Rudolph M. Bell and Martha Howell, eds., '*The Medieval and Early Modern Data Bank*',, www.scc.rutgers.edu/memdb; Robert C Allen, 'Annual series of nominal wages, consumer price indices and welfare ratios', www.nuffield.oxford.ac.uk/users/allen: G Clark, 'The price history of English agriculture, 1200–1914′, *Research in Economic History*, 22 (2004); G Clark, 'The long march of history: farm wages, population, and economic growth, England 1209–1869′, *Economic History Review*, 2nd ser. lx, (2007).
4. For example, the confident statements in Gregory Clark, *A Farewell to Alms: A brief Economic History of the World* (Princeton, 2007), pp. 21–2.
5. J. E. T. Rogers, *Six Centuries of Work and Wages: The History of English Labour* (1949 edtn.), p. 326.
6. The higher rate of increase found by Clark is largely due to his plausible adoption of a substantially lower level of real wages before the Black Death than that calculated by Phelps Brown and Hopkins.

7. H. Hallam, *View of the State of Europe during the Middle Ages*, volume iii (11th edtn, 1855), p. 96 and fn.
8. G. Clark and Y. van der Werf, 'Work in progress? The industrious Revolution', *Journal of Economic History*, 58 (1998), 830–1.
9. D. L. Farmer, 'Crop yields, prices and wages in medieval England', *Studies in Medieval and Renaissance History*, ns vi (1983), 146.
10. R. C. Allen and J. L. Weisdorf, 'Was There an 'Industrious Revolution' before the Industrial Revolution? An Empirical Exercise for England, c. 1300–1830', *University of Copenhagen Department of Economics, Working Papers no, 10–14* (2010), 8.
11. The author is preparing an article that provides more detailed criticisms of current estimates of English real wages before the nineteenth century and presents new methods and data for estimating long-run changes in real incomes and living standards.
12. For a recent account of the methods of measuring real wages and the value of real wage data see R. C. Allen, 'Real Wage Rates (historical trends)', *The New Palgrave Dictionary of Economics*, 2nd edtn. 2008, ed. S. N. Durlauf and L. E. Blume.
13. Hence: R. C. Allen, 'How prosperous were the Romans? Evidence from Diocletian's Price Edict (301 AD)', *Oxford Department of Economics Discussion Papers* (2007); Walter Scheidel, 'Real wages in early economies: evidence for living standards from 2000 BCE to 1300 CE', *Journal of the Economic and Social History of the Orient*, 53 (2010); S. Özmucur and S. Pamuk, 'Real wages and standards of living in the Ottoman Empire, 1489–1914', *Journal of Economic History*, 62 (2002).
14. Phelps Brown and Hopkins, *Perspective of Wages and Prices*, p. 23.
15. For a notable exception see D. Woodward, 'Wage rates and living standards in pre-industrial England', *Past and Present*, 91 (1981). Concentrating on building craftsmen in the early modern period, Woodward argues convincingly that the daily wage rates of building craftsmen and the price of a basket of commodities cannot provide an accurate guide to their fortunes by showing that they were not wage earners but small independent businessmen who made money from a variety of sources including the employment of apprentices, the supply of raw materials and sometimes from small scale farming. He also stresses our ignorance of the number of days they worked and of the income brought in by other members of their households. Woodward's arguments were extended and amplified in Donald Woodward, *Men at Work:*

Labourers and building craftsmen in the towns of northern England, 1450–1750 (Cambridge, 1995).

16. See, for example, the transmutation of the purchasing power of a day's wage into a ratio of full-time annual income to annual subsistence costs in Allen, *British Industrial Revolution*, chapter 2 'The high-wage economy of pre-industrial Britain'.
17. T R Malthus, *Principles of Political Economy*, 2nd edtn. (1826), c.IV, sec. IV, p. 204 (cited by Phelps Brown and Hopkins, *Perspective of Wages and Prices*, p. 61).
18. Steve Hindle provides an extremely perceptive and well-documented picture of spasmodic and fragmented labour markets in the countryside of early modern England: *On the Parish? The Micro-Politics of Poor Relief in Rural England, 1550–1750*, (Oxford, 2004).
19. Farmer declared his series of agricultural wages to be 'fragmentary and unreliable, 1466–1500' ('Prices and Wages', *AHEW*, iii, p. 524).
20. *Ibid.*, pp. 468–71. Clark acknowledges the seriousness of a range of issues connected with the use of piece-rate payments for threshing as a surrogate for day wage rates, including the fact that the ratio of day wages to threshing payments per bushel change substantially over time. He adopts a number of strategies to bring the threshing rates back into line including positing an increase of around 40 per cent in the labour productivity of threshers, who threshed 5.1 bushels a day from 1209–139 but a commendable 7 bushels per day from 1350–1525; from 1525 onwards, however, the productivity of the threshers apparently sank progressively below the pre-Black Death level ('Long march of history').
21. L. R. Poos, *A Rural society after the Black Death: Essex 1350–1525* (Cambridge, 1991), pp. 213–19.
22. Clark, 'Long march of history',100. Clark, however, is only following Beveridge, Farmer and others in relying heavily on the remuneration for these tasks.
23. *Ibid.*, 219–22.
24. D. Young, 'Servants and labourers on a late medieval demesne: the case of Newton, Cheshire, 1498–1520', *Agricultural History Review*, (1999), 158–9. Around the same time cash stipends were 16 s at Elevethall manor, Durham, and from 8 s–13 s 4d at Millom, Cumberland (*ibid.*, 152–3).
25. C. Newman, 'Work and wages at Durham Priory and its estates, 1494–1519', *Continuity and Change*, 16 (2001), 375–78.

26. For example, Farmer writes that, because of an inability to answer a series of basic questions adequately, 'it seems a little incautious to hail the fifteenth century as the "golden age of the English labourer"' ('Wages and prices', *AHEW*, iii, pp. 490–1). Mavis Mate notes that in the fifteenth century 'Earnings…did not always rise together with wage rates' and that outside of harvest time 'workers might be hired for just a few days' ('Work and leisure', in *A Social History of England, 1200–1500*, ed. R. Horrox and W. M. Ormrod (Cambridge, 2006), pp. 286–7).
27. John Hatcher, 'The Great Slump of the mid-fifteenth century' in *Progress and Problems in Medieval History*, ed. Richard Britnell and John Hatcher (Cambridge, 1996), pp. 259–62.
28. *Ibid.*, pp. 262–3.
29. D Farmer, 'The *famuli* in the later middle ages', in *Progress and Problems*, ed. Britnell and Hatcher, pp. 235–6; Newman, 'Work and Wages', 361; Christine Carpenter, *Locality and Polity: a study of Warwickshire landed society, 1401–1499* (Cambridge, 1992) p. 57.
30. Bruce M. S. Campbell (2007), *Three centuries of English crops yields, 1211–1491*, WWW document. URL http://www.cropyields.ac.uk, last accessed 10/12/2009.
31. *AHEW* iii, pp. 502–5.
32. Eona Karakacili, 'English agrarian labor productivity rates before the Black Death: a case study', *Journal of Economic History*, 64 (2004): 24–60; H Fox, 'Exploitation of the landless by lords and tenants in early medieval England', in Z Razi and R M Smith (eds), *Medieval society and the Manor Court* (Oxford, 1966), pp. 544–5; C Thornton, 'The determinants of land productivity on the bishop of Winchester's demesne at Rimpton', in B M S Campbell and M Overton (eds), *Land, Labour and Livestock: Historical Studies in European Agricultural Productivity* (Manchester, 1991), pp. 205–6.
33. Not surprisingly attempts to calculate labour productivity using the purchasing power of nominal wages of around 3.5–3.7d produces decidedly eccentric results. See, for example, the huge surge in the productivity of threshers, reapers and mowers in the fifteenth century claimed in Clark, 'Long march of history', 112).
34. Applying identical methods to comparable data drawn from averages across the first half of the fourteenth century reveals a contrasting set of circumstances in which a farmer cultivating 20 acres of arable would have 'earned' around 2.5d per day when the daily wage of an agricultural labourer was just 1.5d.

35. Farmer, 'The *famuli*', in Britnell and Hatcher (eds), *Progress and Problems*, p. 236. Harold Fox has written of the tied labourers' cottages found on many manors in the south-west of England, as indicating 'some degree of debasement of the condition of some labourers in the so-called "Golden Age" of labour' (*AHEW*, iii, pp. 735–7).
36. Above, p.
37. For example, the central role played by this theory in Clark, *Farewell to Alms*, pp. 21–3.
38. Labour economics is a relatively new field and primarily applicable to modern economies; there are many reasons why its laws should not be applied indiscriminately to preindustrial labour markets (J. Jacobsen and G. Skillman, *Labour Markets and Employment Relationships: A Comprehensive Approach* (Oxford, 2004), pp. 1–12).
39. H. Kitsikopoulos 'Standards of living and capital formation in pre-plague England: *a* peasant budget model', *Economic History Review*, 2nd ser. liii (2000).
40. Clark, 'The long march of history', Tables 1, 99–100.
41. Above, p.
42. Landless labourers are assumed to have worked for hire for 150 days rather than 260 days, of which 30 were paid at 4d per day and 120 at 2.5d; 5-acre householders worked for 140 days (20 at 4d and 120 at 2.5d); and 10-acre householders for 100 days (15 at 4d and 95 at 2.5d). In the next stratum the cultivation of 18–20 acres are assumed to have required the full labour of the male householders. It has been assumed that the same number of days were worked by each category of land-holder in the early fourteenth century, and that the rate of pay averaged 1.5d per day, but it is likely that the availability of paid employment at this time was significantly lower than in the later fifteenth.
43. For a recent account of the improvement in the labour conditions of women in the later middle ages see T. de Moor and J. L. Van Zanden, 'Girl power: the European marriage pattern and labour markets in the North Sea region in the late medieval and early modern period', *Economic History Review*, 63 (2010).
44. This paradox is discussed without questioning the validity of conventional real wage estimates in G. Clark and Y. van der Werf, 'Work in progress? The industrious revolution', *Journal of Economic History*, 58 (1998), 830–1 and J de Vries, The *Industrious Revolution: Consumer Behaviour and the Household Economy, 1650 to the present* (Cambridge, 2008), pp. 90–1.

45. L Shaw-Taylor and E A Wrigley, *The Occupational Structure of Britain, 1379–1911* (http://www.geog.cam.ac.uk/research/projects/occupations/abstracts); S H Rigby, 'Urban population in late medieval England: the evidence of the lay subsidies', *Economic History Review*, 2nd ser. 63 (2010).
46. Such a massive improvement in the material standards of comfort and convenience available over the 400 years make it extremely difficult to conduct a meaningful comparison of standards of living using traditional methods, as Phelps Brown noted. See J.B. DeLong, 'Cornucopia: increasing wealth in the twentieth century', *National Bureau of Economic Research Working Papers*, 7602, March 2000.
47. The phrase used by Clark and van der Werf in 'Work in progress', 830.
48. For statistics showing the proliferation of smallholdings see John Hatcher and Mark Bailey, *Modelling the Middle Ages; the history and Theory of England's Economic Development* (Oxford, 2001), pp. 44–6 and Dyer, *Standards of living*, p. 126. For discussion of the existence of labour surpluses that were far too substantial to have been absorbed by secondary employments see Hatcher and Bailey, *Modelling the Middle Ages*, pp. 43–55, 134–7. Calculations of the supply and demand for labour on Ramsey Abbey manors in the later thirteenth century suggests that even on the most cautious estimates underemployment would have approached 30 per cent (I am grateful to James Gill for this information).
49. As Engels noted 'the normal diet of the individual worker ….varies according to his wages' and both the quantity and quality eaten increased with income: F. Engels, *The Condition of the Working Class in England* (1845), ed. and trans W O Henderson and W H Chaloner, Oxford, 1845, p. 45 (cited in Allen, *Industrial Revolution*, pp. 28–9). For evidence of improving diet in the fifteenth century see C Dyer, 'Changes in diet in the late middle ages: the case of harvest workers', *Agricultural History Review*, 36 (1988). For the existence of leisure preference in the later middle ages see John Hatcher, 'Labour, leisure and economic thought before the nineteenth century', *Past and Present*, 160 (1998), 76–80; G Persson, 'Consumption, Labour and Leisure in the Late Middle Ages' in: K. G. Persson (ed), *Manger et Boire au Moyen Ages* (Nice, 1984); Dyer, *Standards of Living*, pp. 224–5.
50. Precise measurement of the cost of industrial products is bedevilled by the difficulties of ensuring that like is compared with like, but we may be confident that the average increase of around a third in the prices of

nails, salt and cloth between the early fourteenth century is not an exaggeration of inflation in the sector as a whole. For the prices of nails and salt see Farmer, 'Prices and wages', *AHEW*, iii, pp. 512–6; for the price of cloth see Clark, 'Long march of history', p. 108 and John Munro, 'Prices and Wages' in Rudolph M. Bell and Martha Howell, eds., '*The Medieval and Early Modern Data Bank*', www.scc.rutgers.edu/memdb

51. I am indebted to James Davis, Mark Bailey and Jo Sear for informing me of the results of their researches into the local markets of late medieval East Anglia.
52. For example, real wages are central to the 'Great Divergence' debate: K Pomeranz, *The Great Divergence: China, Europe and the Making of the Modern World Economy* (Princeton, 2000); R C Allen, 'The great divergence in European wages and prices from the middle ages to the First World War', *Explorations in Economic History*, 38 (2001); S Broadberry and B Gupta, 'The early modern great divergence: wages, prices and economic development in Europe and Asia, 1500–1800, *Economic History Review*, 59 (2006).
53. Some would see the potential to unlock far more information from these basic data. For example, Gregory Clark believes that by 'using day wages, we can build up a picture of English agricultural history that presents an internally consistent picture of the real wage, the MPL (marginal product of labour), output per farm worker, national population, the share employed in agriculture, and agricultural efficiency in general, from 1200 to 1869' ('Long march of history', 127).
54. For a brief description of the two phase theory and the role of real wages in it see Allen, 'Real Wage Rates (historical trends): real wages and economic growth in developed countries'. For a more detailed analysis of Malthusian theory and preindustrial economies see Hatcher and Bailey, *Modelling the Middle Ages*, pp. 21–65.
55. Real GDP per head data currently being produced from estimates of output, wealth and population size show a modest but generally cumulative trend growth in the half millennium between the later thirteenth century and the mid-nineteenth century (S. N. Broadberry, B.M.S. Campbell, B. van Leuwen, and M. Overton, *British economic growth, 1300–1850: Some preliminary estimates*, Working paper, University of Warwick, 2010).
56. For sizes of landholding on individual manors see, for example: *AHEW*, iii, pp. 614–16; 624; 724; Dyer, *Standards of Living*, p. 141; J Hatcher,

Rural Economy and Society in the Duchy of Cornwall, 1300–1500 (Cambridge, 1970), pp. 226–8.

57. William Harrison, *The Description of England*, ed. G Edelen (New York, 1968), pp. 200–2.
58. Broadberry et al., (2015), *British Economic Growth, 1270–1870*. pp. 187–244; idem, (2018), 'Clark's Malthus Delusion', pp. 641, 643.
59. Humphries and Weisdorf (2017), 'Unreal Wages? Real Income and Economic Growth in England', p. 5. A 'main finding' of the authors is that 'the apogee of the fifteenth-century 'Golden Age' was much lower and surpassed much earlier than other authors have proposed ... confirming Hatcher's intuition that day workers' annual incomes during the long fifteenth century were much smaller than those inferred from multiplying day-rates by 250' (ibid., p. 13).
60. Dyer (2015), 'A Golden Age Rediscovered'.
61. See, for example, Muldrew, 'What Is a Money Wage?', above pp. 165–9, which exposes the illusion that casual farm labourers normally received their pay promptly in full in cash and provides details of the variety of forms of benefits in kind, concessions and promises to pay that their remuneration commonly took.
62. Dymond, ed., (1996), *The Register of Thetford Priory,* 2 vols. *passim*. See also, 'Seven Centuries of Unreal Wages', above pp. 236–7.
63. Dyer (2015), 'Golden Age' Rediscovered, p. 193.
64. Dyer (2015), 'Golden Age' Rediscovered, pp. 194–5.
65. The statements are made by Hatcher on pp. 244–245 (Table 9.2), and 248 of his article printed above.
66. Dyer (2015), 'Golden Age Rediscovered', p. 185.

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10

Cash, Wages, and the Economy of Makeshifts in England, 1650–1800

Craig Muldrew and Steven King

In his work on the artisans of eighteenth-century Paris, Michael Sonenscher has argued that 'the relationship between work and wages was mediated by a variety of non-monetary customs and rights.' He was able to investigate the social context of wage payments and their value through exceptionally detailed court records.[1] In 1989, Leonard Schwarz suggested that such factors needed to be investigated much more thoroughly for other parts of Europe as well if we are to properly understand what went into the 'formation of the wage', its level and its symbolism.[2] Since then Peter Linebaugh has investigated the role that customary entitlements and negotiation played in relation to the wages earned by workers in the Royal Navy dockyards at Deptford, and Donald Woodward has investigated the

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payment systems of building craftsmen in northern England in the early modern period.[3] From this work, it is clear that wages were not simply a straightforward cash payment for work done. The level earned and what such earnings meant in terms of wealth and status were bound up with estimations of the value of factors such as entitlements to food or drink and other customary entitlements in kind, hours worked, skill, fines, and compensatory payments for urban living conditions.

The level and meaning of wages were also tied up with the place of the individual wage within the household economy, and with the place of wages earned through labour at household level in the total value of all sources of income available to the family through what has been termed an economy of makeshifts. Continental literature leads us to expect that in some places and at some times, 'the wage' might make only a limited contribution to family welfare so that by concentrating on wages either as an indicator of effort devoted to earning, or of wealth and poverty, we actually misunderstand the practical role and meaning of the wage as a component of a complex matrix of earnings and access to credit.[4] English historiography has not moved so far, but we now know that contemporary pamphleteers and politicians recognised the components of the economy of makeshifts, and pauper letters confirm this reliance on a wide range of welfare avenues.[5] In addition to these influences, the form and meaning of the wage were affected by the structure of credit networks and the illiquidity of monetary exchange within the economy.

The issue of liquidity has had a tremendous effect on the way exchange was structured in England throughout its history. During the period under discussion, here the number of gold, silver, or copper coins in circulation was limited. Most buying and selling were done on credit and mutual debts would be cancelled against one another at various intervals. Farm servants often found that their wages were partly paid through exchange in kind or other customary entitlements such as beer, food, clothing, reducing the number and amount of cash payments that had to be made by farmers. Even wages for rural day labourers, which were supposed to be paid weekly in cash, posed a problem. Farmers often paid wages irregularly, so that the availability of credit played a large part in the way household earnings were formed on a weekly, monthly, and yearly basis for this group. This is reflected in the nature of litigation, over

small debts in towns. The amount of litigation over wages is dwarfed by suits for small sales credit, reflecting the fact that common practice in England allowed poorer households to buy 'necessities' on credit in anticipation of future wages or other household earnings. However, the practice emerged rather by default than engineering. For shopkeepers, there was the constant risk that some of the debts would never be repaid (it was easy to spend more than was earned when total earnings were unpredictable) yet the poor were too numerous to be excluded *en masse* as consumers.[6] Of course, negotiation was still central to the process of wage formation. The total value of the wage was measured in market price values, even if cash itself did not change hands, and while customary rights survived for very long periods these were most prominent in areas like manors or mines where the law of equity allowed them to be used as a bargaining tool.[7] Wage earners could draw on credit and entitlements as well as market earnings, but always had to negotiate for them from a disadvantageous position. They were not free to use 'earning power' in the modern sense, based on wages, but rather had to gain limited power through possible manipulation of credit or entitlements.

It is on these three significant influences shaping the form and social meaning of the wage—liquidity, the economy of makeshifts and credit systems—that this chapter focuses. Before we move in these directions, however, it is necessary to reconstruct what contemporaries understood by 'the wage' and those that earned it, and to chart how this understanding changed over time. The word 'wage' itself seems to have been derived from 'gage' (a pledge to do something) from which the form to wage law or battle or to make a wager derived. But the meaning evolved from making a pledge to constituting a reward to someone for a service after it was performed. Thus, the wages of labour were its reward just as death was the wages of sin in the King James Bible. This understanding seems initially to have been used to refer to the payment of soldiers, as was salary, which came from the Roman payment to soldiers for salt.[8] It is easy to see why it might have been commonly used in a military context, as medieval armies grew in size and it became common to hire soldiers for wages in large numbers from outside an estate to supplement knight service.[9] Tracing the development of the term 'wages' to refer to a cash payment for a day's work is much more difficult. As Ann Kussmaul has pointed

out, the use of the word 'labourer' to denote wage workers did not become a general term until the nineteenth century.[10] It was also rare to find the word labourer used to refer to a social category before the end of the seventeenth century. Locke, of course, famously analysed the value of labour in the *Second Treatise of Government* but in his example of wage labour used the term servant.[11] Also Gregory King placed 'labouring people' together with 'out servants' in his table of income and expense.[12] John Law, however, referred to 'the poor and other labourers' as those who lived by earning 'the Wages of Labour', and by the time Adam Smith came to write the *Wealth of Nations* it was common to refer to wage earners and labourers as a social group.[13]

For most of the period before the late seventeenth century, 'servant' was generally used as a catchall term referring to both day labourers and servants in husbandry hired for the year or a part thereof. Wages could refer to the contracted yearly payment, or to a day rate. The famous 'Statue of Labourers' was actually entitled *De Servientibus*, and in it labourers were referred to as '*operariorum*', and the Latin terms used to refer to wages were most commonly '*stipendia', 'liberationes',* and '*salaria*'.[14] The Subsidy of 1525 made reference to a difference between wealth and wages. In Norfolk churchwarden's accounts from the early sixteenth century the term 'wages' was used to refer to day labour, but the words 'stipend' and 'hire' were also used. Most often the work done was simply stated with the pay given for the specific task mentioned. The same was true of churchwarden's in Suffolk.[15] Shakespeare used the terms 'labourer' (3 times) and 'workman' (9 times) and 'wages' (10 times) very rarely compared to 'servant', 'service' and 'pay' or 'payment' (used hundreds of times). In their farm accounts, both Henry Best (1616–1641) and Robert Loader (1610–1620) also tended to use the term 'wages' only to refer to yearly servant's wages or for harvest wages, while daily labour is referred to by the job done.[16] In the 1680s, the King's Lynn Chamberlain's accounts refer to odd jobs under the designation of 'common charges', while small wages are listed for continual tasks such as cleaning and looking after gates and locking doors.[17] 'Labourer', however, became a common designation used in probate documents, although again this was more common in some places than others.[18]

Liquidity and the Form of Wages

The continued use of the term 'service' and the continued importance of the employment of servants in husbandry had a basis in the continuing shortage of cash in the economy in the early modern period. In turn, liquidity is a key variable for understanding the meaning of the wage and we need briefly to examine the degree to which the early modern economy was monetised. A lack of monetisation in the early middle ages is something which is considered to be characteristic of feudalism and its emphasis on obligations of service. Richard Britnell has estimated that between 1000 and 1180, the total circulating currency in England did not rise above £120,000 or only 1 s. for each member of the population. The standard coin was the penny, which was sometimes cut in half or quartered but was otherwise of little use in small daily transactions. This placed obvious limits on the monetisation of exchange and led to the payment of many tenurial obligations and dues in labour or kind rather than cash.[19] With population growth in the thirteenth and fourteenth centuries, the monetary supply also expanded, stimulating an increase in the commercialisation of English society. But despite the increased circulation of money, most wage labourers on demesnes still received the majority of their remuneration in kind rather than cash.[20]

The amount of money fell again in the depressed years of the fifteenth century, and despite the influx of gold and silver from the New World into Europe, J.R. Wordie has argued that little stayed in England, and that by 1600 there was only £1.5 million in circulation, or only about £1 16 s. for every household in the country.[21] But, between 1540 and 1600, food prices also more than trebled, while industrial prices doubled, and the amount of goods being consumed on the market also, roughly, doubled.[22] As a result, by the end of the sixteenth century, the notional demand for money had probably increased by something like 500–600%, while the supply of coins hardly expanded at all. Even though the amount of gold and silver in England rose after 1600, the problems of shortage remained. In 1653, for instance, Ralph Josselin claimed that he was without even a penny for 'divers dayes'.[23] As a result of the bi-metallic nature of the coinage by the Restoration, the circulating currency was almost

entirely composed of silver coins, and as clipping reduced the value of many coins, good silver money either left the country or was kept out of circulation by merchants.[24] Samuel Pepys and William Petty both estimated that there was probably only £6–7 million worth of money in circulation in the late 1660s because so much was hoarded.[25] This had to supply the demands of increased foreign trade, massively increased taxation, increasing poor rates, as well as wage payments.

Liquidity was no better in the eighteenth and early nineteenth century. As the mint price of silver drove smaller silver coins out of the country in the early eighteenth century, the gold guinea was the standard unit of metallic currency.[26] This can be seen in Table 10.1 which is an attempt to estimate roughly the availability of currency in the eighteenth-century economy.[27] While the amount of paper credit expanded considerably after the financial revolution, as did the total value of gold coins in circulation, this was of little use to pay weekly wages. Between 1700 and 1750, only one million pounds worth of silver coins were minted, and this was probably the maximum amount in circulation at any one time as many of these coins would have been needed by smaller tradesmen. Other than this there were various issues of copper farthings which were problematic because they could be counterfeited easily. As a result, there was probably much less small change available for most of the eighteenth century than there had been in the 1670s and 1680s when Locke, Law, and Petty identified its lack as a major problem (Table 10.1).

Thus, in the 1750s, when the population was about 6,000,000 (1,263,158 households) and about 50% of these were gaining income from wages or other small payments, a weekly cash wage of 7 s would have required £221,053 to circulate weekly. This was greater than the amount of farthings in circulation, and although it is impossible to know how many silver coins there were, from 1725 less than £4000 was minted in most years. As a result, it was reported that most shillings and six pence pieces were little more than worn blank disks, while half crowns continued to be hoarded. In addition, since the Mint made no provision for distributing farthings, local gluts tended to occur causing shortages elsewhere. In 1754, the butchers, bakers, and grocers of London petitioned the government to withdraw the copper coinage because they were burdened with £50–£500 each which they could not get rid of. Thus,

Table 10.1 Forms of circulating currency in the eighteenth-century economy

1700–1725	Type of currency	Amount	Estimated number of negotiable units
1694	Bank of England Bills of £5–10	£1,200,000	180,000
1695–	Exchequer Bills of £5	£167,000	33,400
1700–1750	Minted Gold Coins (Guineas)	£17,000,000	15,500,000
1700–1750	Minted Silver Coins	£1,000,000	10–20,000,000
1701	1/2p. Copper Farthings	£137,000	65,760,000
1719–1725	1/2p. Copper Farthings	£30,289	14,538,720
1700	10s. Lottery Tickets	£25,000	50,000
1725–1775			
1729–1754	1/2p. Copper Farthings	£173,000	83,040,000
1752	Bank of England Notes in Circulation (above £5 in value)	£4,750,359	
1760–1775	1/2p. Copper Farthings	£46,454	22,297920
1775–1810			
1775	Gold Coins	£20,000,000 (est. English circulation)	
1752–1801	Silver Coins Minted	£143,313	2,866,260
1785	1/2p. Copper Farthings	£322,000 (estimated to still be in circulation)	154,560, 000
1779	County Bank Note Issue	£57,000 in notes of less than £5	c.11,550
1787–1797	Private Trade Tokens manufactured in Birmingham	£122,000	29,400,000
1799	Boulton's Copper_ Cartwheel' Farthings	£679,311	256,524,240
1804–1815	5s. Silver Dollar Tokens	£4,457,649	10,300,000
1808–1809	County Bank Note Issue	£14,618,350	
1808–1809	County Bank Notes Issued of £2 or Less	£6,247,165	c.3–6,000,000

shortages of coin for wages were more acute than ever by the mid-eighteenth century.[28]

Indeed, as Table 10.1 suggests, it was not until the recoinage of 1786 and, more particularly, the crisis of the Napoleonic wars (when the need to finance heavy taxation coincided with the suspension of gold payments

in 1797) that small change began to be produced in significant quantities.[29] In addition, as Peter Mathias has shown, private trade tokens began to be issued again in large numbers after 1780.[30] Supplementary evidence supports the view that in a national sense at least the coinage crisis was easing. Poor relief bills in most regions begin their upward spiral in the 1780s, and while this has often been attributed to inflation, the movement and the fact that it was so uniformly felt might have a rather simpler explanation—that by the later 1780s poor law authorities had for the first time the liquid funds to be able to put generous relief policies in place (see below). Moreover, the 1780s and 1790s mark the development of a widespread system of out-parish relief in the northern industrial counties, whereby parishes of settlement paid relief to paupers who had moved elsewhere to work but subsequently become dependent upon relief in their new parish of residence. Payment frequently took the form of giving small change to agents who then distributed it to the paupers concerned. This practice, and the flexible labour markets that it underpinned, would simply not have been possible where currency shortages were severe *and* enduring.[31] Nor should we forget that whatever was happening to the national supply of coinage, an increasing network of provincial banks was developing from the later eighteenth century, potentially fostering a faster local circulation of coinage and offering a connection between those who had money and those who needed it. In Lancashire and parts of Yorkshire, increasing numbers of attorneys filled the same function, often recirculating tiny amounts of ready cash on behalf of their clients and on their own behalf as they made their fortunes.[32]

Yet, it would be wrong to overstate the impact of any notional increase in the supply of small coinage. Even by the opening decades of the nineteenth century, the supply of coinage was failing to keep pace with the increasing numbers of people dependent upon wages and the scale of industrial and commercial agricultural production. Progressive increases in the size of farms in most counties and a gradual move from outwork or workshop production to centralised urban production placed intense pressure on farmers and entrepreneurs to be able to find the cash for weekly or even daily wages. Their complaints about their inability to achieve this objective, and the complaints of workers who were rarely paid regularly can be found in the firm records, diaries, and newspapers

of much of industrial northern and midland England, even after 1810. A further problem was that while country banks might facilitate liquidity for short periods, their periodic collapse could decimate local and regional currency circulation systems. Nor should we forget that for much of the eighteenth and well into the nineteenth century, the fastest growing industrial areas were also the remotest, generating logistical problems of moving cash around, whatever its nominal supply. It was for this reason that trade tokens became a regular part of everyday life in industrial Lancashire and the West Riding by 1800.

This liquidity problem was made even more acute because the number of wage earners increased inexorably in the eighteenth century. Already in 1377–1381, Christopher Dyer has estimated, from poll tax evidence, that the proportion of people who earned most of their living from long and short term wages must have exceeded a third of the population of England.[33] This proportion had risen somewhat by the time of subsidy of 1524–1525, and in Alan Everitt's estimates, this seems to have been roughly the same a century later, although there could be large regional differences.[34] By 1688 Gregory King estimated that the numbers of households which had to be paid wages or poor relief (labouring people, out-servants, cottagers, and paupers) had reached 47% of the population.[35] According to Lindert and Williamson's revisions of Joseph Massie's social table of 1759 and Patrick Colquhoun's occupational headcount of 1801–1803, the numbers of labouring families and cottagers as well as those who earned wages through textile work, building and mining were about the same at mid-century, but had risen to 60% or more by the beginning of the nineteenth century.[36]

Thus, while there is no doubt that the economy became increasingly monetised in the sense of measuring value in terms of price, this was done with money of account and did not mean that actual cash changed hands. Clearly, it is better to talk of a *price economy* not a *money economy*. The impact of this situation on the form and meaning of wages was profound. In buying and selling, both within towns and between town and country, cashless exchange was the norm. In the context of the manorial economy, while servants and day workers were paid money wages and tenants paid rents, very often these values could cancel each other out, or could be paid in kind worth a similar amount in monetary terms. The remainder

would then be paid in cash, or turned into a smaller debt. In addition to this, many servants continued to have their wages supplemented with board and meat (see Chap. 7 above), which in the case of servants in husbandry could amount to sum greater than their wages. Wages could also be supplemented by customary entitlements such as gleaning or the gathering of firewood. The 'meaning' of the wage is thus influenced by aspects of liquidity in ways that historians have thus far failed to really appreciate.

Such means of making bargains and transactions without cash payment can be found in many seventeenth century farm accounts and memorandum books. Probably the most well-known example are the accounts of the early seventeenth-century yeoman Robert Loader. He made meticulous efforts to try and calculate the expenses and profits of his farm. He worked out very carefully how much each of his servants cost him in terms of food provided, as well as how much work they did for their pay. As both Ann Kussmaul and Donald Woodward have noted, Loader estimated that each servant cost him about £10 5 s. a year in food and drink compared to wages of between £3 and 15 s. 6d., and he constantly complained that it would be cheaper to keep fewer 'unruly' servants and instead rely on wage labourers.[37] When writing up his costs and expenses for 1613, he calculated that if he only kept one maid servant he would save £5, based on his calculations for 1612 when he hired his servants at board wages. Despite this he only made one further experiment hiring for board wages—with his carter William Weston in 1617. A careful examination of his accounting makes clear the reason for this was that he simply did not have access to enough ready money to pay regular cash wages. When he negotiated with Weston for his board wages he agreed to pay £11 in money together with four bushels of wheat, three weeks board at harvest, the keeping of a hog by Loader, and shorter days in the winter, which Loader reckoned to be worth £13 9 s. 4d. He termed this 'exceeding great wages', and indeed it was little different than what a carter usually cost him with board provided.[38] Even the wages he assessed in cash were often paid with wheat, or reckoned against other services he provided for his servants. In this way bargains could be made and wages could be cancelled in a very simple way against food he produced, rent he was owed, or the use of his land. Loader's accounts make it clear that bargains were entered into at market rates between him and his servants,

and that entitlements in kind had a monetary value agreed through negotiation. This was not simply barter or payment in kind based on feudal obligation, but a way of engaging in market bargaining with limited use of cash. In this context it is interesting to note that Loader actually wrote about 'spending' his wheat or hay to pay wages in the same way as spending actual money.[39] It was probably for such reasons that whenever Loader complained about the cost of servants, he first proposed putting forth his land to tillage or rent before suggesting that he should keep his servants at board wages.[40]

Servants were also often allowed to put animals at pasture on their master's lands. Like Loader, the Yorkshire farmer Henry Best paid one servant £6 together with barley, oats, oatmeal, a coat and straw, but to another he paid £5 in money and wintered 10 of his sheep, forgave his house rent for a year and paid for the cost of a cow for the summer.[41] The Catholic estate owner Richard Cholmeley of Brandsby in North Yorkshire also had quite complicated bargaining arrangements with his servants. In his memorandum book from the first quarter of the seventeenth century, he sometimes noted wages that he could not pay which were in arrears and which were converted to loans that he owed to his servants. On another occasion when one maid servant left his service he wrote that he owed her £4 10s. for 2 1/4 years wages, as well as another 40s. which she had 'lent' him, and 33 s. which she had disbursed on Cholmeley's wife's linen. He owed a neighbouring yeoman's wife £4 10s. which another maid servant had borrowed from her to pay for her wages. He also recorded owing her £10 which he had 'borrowed'.[42] There are also a number of instances in his memorandum book where it is clear that he paid the monetary portion of the wages he owed after receiving larger cash payments for something he had sold.[43] In addition he commonly paid a lot of wages after his rents were paid in.[44]

This type of exchange could be done with day labourers working on a farm as well. Cholmeley paid some labourers to carry wood with corn, beer, ale and meat as well as cash.[45] But it was more common with day labourers, if the cash was not available to pay their wages, to turn them into a debt which the employer owed to the labourer. This debt could then be cancelled against a debt the labour might incur to the employer, usually for grain or some other agricultural produce. This process can be

seen very clearly in the double entry accounts of Nathaniel Brewer a farmer of Over Stowey in Somerset. In 1713, for instance, he listed debts due to him from a labourer for various sales of peas, barley and wheat worth about £3 15 s. On the debit side he listed debts he owed the man for felling timber and sawing it.[46] This practice remained common throughout the eighteenth century, and as Mick Reed has argued well into the nineteenth century.[47] Such debts had the advantage that they could be transferred to third parties making the bargain more flexible, as in an instance where Richard Cholmeley paid a tailor for some work done for one of his servants as part of the wages he owed her.[48] Eighteenth- and early nineteenth-century Lancashire, the locus of some of the most substantial notional demands for ready cash to pay agricultural and industrial labour, provides some of the most compelling evidence for these practices. The number of extant account books from householders, doctors, and entrepreneurs numbers several hundred. One of the best, that of Rowland Park of Kirkby, records a long history of coping with lack of cash. His devices were innovative. For instance, he wrote off servants' wages against medical treatment from the Fylde doctor Richard Loxham, in turn directing the bills of the doctor to the wholesalers who purchased his crops and animals on a six monthly basis. Park even paid his poor law bills in kind or through deferred notes of hand.[49]

Wages for non-agricultural labour were more difficult to treat in this manner. They could not be cancelled against food produced by a farmer and, as Donald Woodward has shown for building workers in the north, it was even more expensive for industrial employers to provide beer and food than it was for farmers since they had to purchase it.[50] In some instances the cash proportion of spinners' or weavers' wages might be cancelled against purchases of cloth, but the purchase of cloth and other necessities was not nearly as common as food. Thus, Locke argued that day labourers, those employed in building work in towns, spinners, weavers, stocking knitters or any other industrial workers should ideally be paid every week in cash. But although an analysis of amounts of cash contained in a sample of probate inventories shows that on average more cash was held by residents of towns than rural dwellers, there was still an insufficient amount in circulation to pay industrial wages on a weekly basis. By the end of the seventeenth century most cash was hoarded by

tradesmen for use in long distance trade, and comparatively little was available in small change to pay wage earners.[51] Because of this wage earners had to sell their labour on credit and wait for their wages to be paid in arrears. In one case from the London Mayor's Court for 1689, a bottlemaker was forced to borrow £10 to pay his workmen's wages, which they demanded that night.[52] In 1729 it was reported that keelmen involved in the coal industry in county Durham had to live on 'trust' during the winter while waiting for their wages to be paid.[53] A shopkeeper who sued a brickmaker in the Birmingham court of requests in the mid-eighteenth century claimed that the latter's master had told him that during the winter season the defendant 'can get only clay, consequently his wages are small; trust him with what he wants, and I will see you paid in the summer'. Here the bricklayer's wages would have simply been turned into a debt owed by the master to the shopkeeper eliminating the need for small change. Unfortunately, in this case, the master broke and fled the city leaving the bricklayer unpaid and liable for the debt to the shopkeeper.[54]

The experience of 'putting-out' entrepreneurs and their workers in the eighteenth- and early nineteenth-century Lancashire and Yorkshire textile industries provides a useful case study. Despite the increase in the amount of token coinage in the 1790s such entrepreneurs complained constantly about having insufficient liquidity to pay workers for their pieces at the end of a production week and resented any drain on their ready cash reserves.[55] By the late eighteenth century, many of the putting-out concerns in the Rossendale valley and the Manchester hinterland had entered into formal agreements with the trustees of Turnpike Trust companies to purchase large amounts of small change, offering a small premium in the process. Such agreements are to be found in most of the Lancashire Turnpike Trust cash account books. Yet, such innovative schemes notwithstanding it is generally accepted that putting-out merchants in both Lancashire and the West Riding were usually at least two weeks in arrears with wages. This was a great improvement on the situation 50–60 years earlier, but the evidence of workers from a Royal Commission of 1806 suggests that workers accepted, albeit with frequent hostility, that their wages would not be paid on time. The amazing preponderance of small irregular payments to men and women in Yorkshire

and Lancashire poor law accounts may well be a reflection of the need for workers to tide themselves over (and a reflection too of the role of putting out entrepreneurs in local poor law administration) irregular wage periods, as might the now convincing evidence of a co-operative culture in much of the north and northwest in the eighteenth and early nineteenth centuries.[56]

Currency shortages in manufacturing areas were also a main incentive for employers to initiate truck systems, thus short-circuiting local credit networks. David Whitehead of Waterfoot Mill, in Rossendale, Lancashire, for instance, was obliged to buy in small change from Manchester to pay his workers because his own was absorbed by his position as banker to the poor law. But even this was not enough, and he opened a mill shop which offered subsidised food and household goods on credit to employees and others in the locality. The Waterfoot Mill Shop account book, running from 1812 to 1826, records debts only at year end when the shop formally balanced accounts obviating the need for cash over very long periods indeed.[57] Such practices, though, were not a new means of dealing with the shortage of cash.[58] As early as the late seventeenth-century John Locke complained that many manufacturers, especially clothiers in the wool trade, trucked commodities for work,

> which, such as they are, good or bad, the Workman must take at his Master's Rate, or sit still and starve: Whil'st by this means, this new sort of Ingrossers or Forestallers, having the feeding and supplying this numerous Body of Workmen out of their Warehouses, (for they have now Magazines of all sorts of Wares) set the Price upon the poor landholder [who] must sell it to these Ingrossers, on their own terms of Time and Rate; and allow it to their own Day-Labourers under the true market price.[59]

Workers' penny clubs in alehouses also played an important role in alleviating liquidity constraints by allowing masters to pay workers less regularly in gold coins which would be used to pay alehouse scores.[60] The alehouse keepers could then provide small change in the form of the farthings or worn shillings which middling tradesmen did not like. One case recorded in the law notes of Sir Dudley Ryder concerned an alleged quarrel in a public house where the plaintiff, a master carpenter, said he

normally paid his workmen. In this case there was a dispute over 16 s. wages demanded by a journeyman, which the plaintiff could not pay because he had no cash. He offered to go home to get it but the journeyman would not trust him. In this case the landlord offered to pay, but the master did not want to become indebted to him and a quarrel ensued.[61] William Hutton recorded one case where a master bucklemaker paid two journeymen together with one gold coin 'when reckoning with his people on Saturday night' because he lacked silver.[62] He also recorded other cases of journeymen spending their wages in penny clubs chalking up alehouse scores which they were unable to pay. But this function of the alehouse was obviously problematic for moralists because it meant that wages were spent on ale before a worker's household. Hutton continually complained about Birmingham worker's spending on ale, even though they lived on the edge of want.[63]

At this time the Navy was undoubtedly the largest employer which had to pay in cash. Its problems in finding enough of it might be seen as a microcosm of the economy in general. In the early years of the Restoration wages were often years in arrears, leading to the disaster of the Second Dutch War (memorably described by Samuel Pepys) when no money could be found to pay people to man English ships.[64] Such problems continued through the eighteenth century. A system of paying credit by ticket was established, but the credit of the Navy was so bad then they could only be cashed by sailors at a discount, effectively reducing their wages.[65] Mariner's wages in general were an even greater problem than other wages because the transient nature of sailor's lives meant they were even less trusted with credit than other poor people. It might be years before they returned to port, and often, of course, they would not return at all. Because of this, mariners were the one wage earning occupation who sued in large numbers for wages.[66] We will return to this theme later. For now, it is clear that lack of liquidity could influence the level, meaning, form, and prevalence of the wage in very subtle ways. But lack of cash and irregular wage payments could also have important indirect effects on the meaning of the wage by placing emphasis on the alternative coping strategies of labouring households, particularly the relationship between work and communal welfare.

Wages in the Economy of Makeshifts

In England, increasingly in the eighteenth century the most significant plank of this economy of makeshifts is often seen by welfare historians to be the income offered by the poor law. National relief expenditure bills rose from about £150,000 in the 1650s to £400,000 in 1700, to almost £2,000,000 by the mid-1780s and over £4,000,000 by 1803.[67] This was paid either directly in the form of allowances (in cash and kind) or indirectly through the interaction of local relief policies and the structures of local labour markets. Poor relief is thus a potentially crucial influence on the form and level of wages. Yet it was not the only element of the economy of makeshifts which could have an impact in these terms. Gleaning, embezzlement, exploitation of waste land, crime, credit, drawing upon kin and other networks, petty production, remarriage are all implicated in the daily and yearly business of making ends meet when ordinary people deployed their own words before the vestry or in letters to the overseer.[68] There have been few studies of alternative earning avenues or their relationship to the payment of poor relief and wages, but it is nonetheless important to investigate these variables further as a precursor to dealing with the communal welfare system.

Thus, one element in the process of making ends meet was the assumption of rights to perquisites by workers throughout the period dealt with here. These could significantly augment the notional 'earnings' of industrial workers in particular and proved a persistent thorn in the side of putting-out entrepreneurs. Equally, perquisites could substitute for wages rather than simply augmenting their level. The diary of David Whitehead from Rossendale in Lancashire provides a unique insight into the most lucrative of all perquisites, embezzlement. After a series of failed apprenticeships between 1805 and 1816, Whitehead agreed to act as a travelling salesman for a local merchant. Two things made a particular impression on him. First, how little cash there was in the bustling Rossendale valley, an area at the heart of the English industrial revolution; second, the fact that the vast majority of those who wanted to 'buy' his goods did not want to pay in cash. Rather, they wanted to barter for the goods Whitehead had to sell with raw materials embezzled from putting-out merchants.

These raw materials were usually raw or spun cotton, but might also include wool or made-up garments. Such experiences prompted Whitehead to give up his job as a salesman, and constitute the most visible testimony to the points we have been trying to make here.[69] This said, perquisites were of limited use for some day-to-day transactions. To make life bearable, sophisticated credit, borrowing and reckoning systems also developed around industrial production and wage earning.[70] We return to this aspect of the economy of makeshifts later in the chapter.

Meanwhile, a further strand of the economy of makeshifts was the variation of household residential arrangements. A typical response to inadequate or irregular wages in the domestic economy might involve bringing in unpaid family labour to replace ancillary workers hired in the labour market. Old people and children or grandchildren were important components of this unpaid labour pool.[71] For factory workers and other families where earning opportunities were mainly outside the domestic sphere, giving a home to kin or friends might free up family labour from domestic chores or reduce the opportunity costs for women wage earners by providing childcare. This is not a new observation, as the work of Anderson has shown, but it is important to acknowledge that varying household arrangements could have an important impact on the level, and symbolism of the individual and family wage. Of course, coping with liquidity problems in this manner rather than turning to, say, neighbourhood lending and borrowing networks, also had the added advantage of not incurring debts of obligation to other local families which might then have to be repaid.[72] Meanwhile, it is important to note that even if they did not live together, those wage earners most vulnerable to irregular cash wages often crowded together in residential terms as a means of maximising credit opportunities, creating lending and borrowing networks and pooling buying power. In the parish of Calverley, the bulk of eighteenth-century wage earners can be found crowded into low-cost housing on common or moorland.[73] Housing surveys and lease data for south west Lancashire provide more evidence. A survey of Birkdale in 1815 highlighted four terraced cottages standing on common land, and gave details of the occupants. A mixture of poor widows and families overburdened with children, they lived rent free in these town cottages, but got no other

allowances. The overseer clearly envisaged a self-supporting and distinct community of poor wage-earning people. Some confirmation of this contention can be found in an 1816 lease between Charles Blundell and two local gentlemen who wanted to use money raised by a public subscription to build a cottage, on the same common land, for the widow and children of a local sailor who had perished at sea. The fact that a public subscription was held is an important indicator of other welfare avenues, but more significant is that the cottage was to be built right next door to housing for other poor wage-earning people.[74] Contemporaries clearly attached some significance to proximate residence and the interlocking welfare obligations that they felt might ensue. In addition, both shopkeepers and employers benefited from such spatial proximity—the former could track outstanding credit and reputation much more easily in such areas, while the latter experienced reduced opportunity costs of finding outworkers. Such 'opportunities' probably also reduced the pressure on entrepreneurs to find the cash component of wages and encouraged payment in kind.

Charitable provision was another potential way of coping with irregular wages and may also have had an impact on their form and level.[75] Of course, the term 'charity' masks many forms of giving: formal charitable endowments; the charitable activity of nonconformist groups; occasional dispensation of money or gifts by private individuals; and irregular disbursements by charitable funds which stemmed from collections by local elites to tackle the poverty occasioned by factors such as trade depression. If we tally the resources offered by 'charity', they were very substantial indeed throughout the period covered by this chapter. Even by 1800, when many commentators suggest the charitable imperative was dwindling, the potential income from formal charitable benefactions alone may have matched or exceeded the sum paid out of the parish rates for poor relief.[76] It is true that much charity capital was absorbed by London, and that charity might also be directed in such a way as to offer little real benefit to those who were struggling to cope with meagre or irregular wages.[77] This said, many other charities gave out substantial cash sums and made little or no distinction between workers receiving wages and the old, sick, or orphaned who might or might not be eligible for poor relief. Indeed, some charities explicitly made payouts to wage-earners. An

1811 'Dole Book' for Halifax records the family circumstances, employment status, wages, and other details of those who were given food paid for by a collection in that year. The 228 names on the list represented a more substantial sub-section of the population than the 149 on the relief lists for that year, and while the quantifiable benefit of the dole may have been limited the fact that the dole was given at all is testimony to the fact that liquidity problems for labourers became particularly severe during trade downturns, when the meaning of the wage may also have changed.[78] In the same manner, personal charity could be a significant boost to wage earners. The incredibly detailed seventeenth-century records of the charitable activities of the Flemming family of Rydal are one example. In 1686 alone, the family gave £98 to the poor households in south Westmorland, far outstripping sums raised through local taxation.[79] In turn, where recipients of charity were also working, 'the wage' might actually be a residual payment, hardly deserving of the attention that historians have paid to it. Employers, aware of this fact, might thus have been under less pressure to pay market wages or wages in cash form than would otherwise have been the case.

For those on the outside of the charity processes, other welfare avenues also beckoned. While gleaning and foraging on the wastes and commons may have made a substantial contribution to monthly or yearly welfare, such 'rights' had been under pressure for many years by the middle of the eighteenth century.[80] Yet in most northern counties farm or industrial land was located within the midst of large tracts of waste and common, where customary access to 'communal' resources had considerable longevity. In Rossendale, Cumberland, Westmorland, and Yorkshire, labouring families could still reasonably expect to be able to cut turf and take other resources from open land even by the later eighteenth century. Inter-community disputes over the rights of access to waste land in Yorkshire provide ample testimony to the perceived value of these communal resources by wage earners.[81] Certainly, for some wage earners, at least these potential avenues might be one way to avoid the periodic large bills (for fuel, for instance) that irregular cash wages made it difficult to budget for. Continuing access to such alternative avenues was almost certainly part and parcel of the continuation of a customary wage for women.[82]

At individual, family, and community level 'the wage', in whatever form it was received, was normally wrapped up in a rich diversity of economy of makeshifts because of the continuing lack of cash. Where this meant that the wage was a residual component of income, its form and meaning differed substantially from situations where it remained the mainstay of income. This said, the supply of makeshift resources came to be outpaced by demand during the eighteenth century. This was particularly true for the southeast and midlands, but was also true generally. It is no surprise, then, to find that commentators from Snell and Wall to Horrell and Humphries have increasingly emphasised how poor relief increasingly became used as a sort of communal wage 'supplement'. People combined both income streams and indeed an expectation that they would lay at the heart of poor law legislation from its very inception in the late sixteenth century. The nature of this relationship is a key influence on the way that we should read 'the wage'. In one sense, the relationship is easy to specify. For instance, under the Speenhamland system (which periodically from the 1790's to the 1820's linked the level of relief to the price of bread and the size of rural families), farmers were encouraged to pay low and sticky wages in the knowledge that deficits in the household income of rural labouring families would be made up with community resources marshalled via the parish rate. But, the Speenhamland system was just one way in which the poor law might have a very direct impact on the level, form, and significance of wage payments. In much of the north, for instance, practices such as paying small pensions to those who sought work outside the parish or paying small pensions at slack times of the industrial year acted in effect as a labour market subsidy and made industrial wages less responsive to supply and demand than might have otherwise been the case.

In some industrial areas, there is evidence to show how this relationship was a result of currency problems. Although the nature of rating and collection systems differed radically and unsystematically between areas, employers and the local poor law were frequently in the market for the same set of small change. Overseers' normal practice was to raise a monthly collection to coincide with the way in which they set down their poor law accounts. As a result, spiralling nominal relief bills could inflict significant drains on the ready cash reserves of farmers and industrial

employers, especially since vestries frequently showed little tolerance for late payment of poor relief bills.[83] The very fact that poor rates increased might thus have undermined the ability of employers to pay regular wages. Because of this, in large parts of the industrial north and midlands millowners and their relatives were the biggest contributors to the local rates. They also owned most of the debts run up by a constant tendency for the poor law to overspend, and were the most active people in the administration of relief. Thus, small regular and irregular money payments were used to keep the core of the local population (and hence a potential labour force in remote areas) in place through seasonal fluctuations, periods of falling piece and time rates, and episodes of life-cycle crises. Although at the same time there is considerable evidence from vestry minutes and other poor law records that ratepayers and overseers saw efforts to help oneself through work as a gateway to the relief process and continued to insist on work as well as welfare even in the extremities of old age.[84]

There were also more subtle, long lived, and complex relationships between the poor law system and labour markets which shaped the function and symbolism of 'the wage'. Overseers, for instance, could engage with the credit system. Evidence from pauper letters in Essex, Westmorland, and Lancashire indicates clearly that pleas from paupers for overseers in their parish of settlement to meet debts increased during the eighteenth and early nineteenth century. Vestry minutes suggest that many such pleas were met, effectively bolstering otherwise fragile local credit networks and heading off demands for cash wages on a regular basis. Meanwhile, the poor law might also meet extraordinary payments such as rent, which could prove both a burden to working families and a problem for landlords and local economies if it remained unpaid. In places like nineteenth-century Lund, Lancashire, up to one half of all poor law resources in some years were expended on payment of rents.[85] The vestry of Garstang consistently struggled with the burden of rent payments, regularly recording resolutions to the effect that no more rent payments would be authorised. This had little effect, as rents continued to be paid.[86] In turn, if the poor law increasingly came to remove the need to save surplus wages for extraordinary items such as rent (and also clothing and medical relief), so both the level and the form of the wage could

remain substantially static in both agricultural and industrial localities. Moreover, we should not forget that the poor law was in its own right a significant employer and payer of wages, ranging from the workhouse master and mistress, to suppliers of goods and services. Relief and payment of wages might even overlap where the goods and services represented by increasing payment in kind in most places during the later eighteenth century were supplied to poor people by other poor people.[87]

Overseers were also very likely to support self-employment. In northern communities in particular they can be seen systematically paying for items to support work, rather than simply paying to support wages. This included expenditure on things like coals for blacksmiths, looms, potatoes for seeding, and cloth for selling. In terms of overall poor law budgets, these sorts of expenditure were usually small, but the effect may have been disproportionate. In the Lancashire cotton spinning parish of Longton, for instance, the poor law authorities entered into agreement with a local merchant partnership that the parish would pay loom rents for local textile workers, keeping a whole range of people off of relief who might have been otherwise dependent.[88] Similarly on March 24, 1816, the poor law authorities employed a loom master to repair the looms of local people who might otherwise be obliged to interrupt work and claim poor relief. The overseers also lent, outside the framework of the poor law accounts, money to buy looms.

In short, the poor law could subtly or directly interlink with the labour market and the wider economy of makeshifts by eliminating the need for cash to circulate to pay for expenditures such as rent, or to redirect cash flows from the wider community in the form of rates, to supplement wages and other earnings which otherwise would have had to have been circulated though market forces—with the inevitable bottlenecks this would have implied. While more work needs to be done on this crucial relationship, it seems clear that it is impossible to view the level, form, or symbolism of wages in isolation from either the availability of cash or the nature of the economy of makeshifts as much historiographical literature has done thus far. Nor should we ignore the fact that dealing with the lack of cash and the complexity of family and household earnings meant that credit rather than weekly wages lay at the heart of the family economy.

Wages in a Credit Economy

One piece of evidence for the importance of such credit is the fact that bread continued to be sold in the form of penny loaves, where the size of a loaf changed according to the changing market price of grain, but was always worth a penny, thus making it easy for bakers to keep track of what poor families owed for their bread.[89] Such reliance on sales credit can be seen in the suits brought before the Bristol Court of Conscience, which was established in 1689 to process a large number of suits in a short time with little expense. Although the limit on cases which could be brought before the court was 40s. most were for less than a pound, and thus show what sort of debts poorer households litigated over.[90] Many suits were for debts which the poor owed for food and other necessities, and many were for debts they were owed for small services which were part of the economy of makeshifts. Small tradesmen sued for debts as varied as meat and drink, rent for lodging, butter and eggs, a hat, coffee, bread, poles, shoes, a pistol, and much beer and cider. In 1692, where the goods sold were listed, food and drink accounted for 29% of all sales. There were also many suits brought by tailors and cordwainers, but only a handful for unpaid wages. Debts owed for work and specific small services were always more common than wages. These included things as varied as nursing, washing, the sale of milk, schooling, payment for gate keeping, carriage of hay, hauling stones, fees for teaching a deaf child, and dressing wounds.[91] Rent for lodging was common as well.[92] In the Bath Court of Requests (another name for a court of conscience) studied by Margo Finn, in 1829 and 1839 the majority of suits were brought to court concerned debts for food and drink, while by 1839 more than twice as many suits were brought against labourers than any other occupational listing.[93] Such observations fit well with the recollections of a late nineteenth-century observer on his childhood in Yorkshire, where credit was the mainstay of life and the wage was something that figured as a residual issue to be dealt with at the end of a week.[94] Even as late as 1900 many wage earners had to purchase goods on credit to survive until they had done sufficient work to receive payment.[95]

As noted previously, wages could often go unpaid for years on end, and even after substantial periods of contractual work the value of wages could be disputed depending on their economic context. A case brought to King's Bench by London mantua maker in 1754 concerning her proper wages shows how complicated the negotiation for a wage could be, and also how many people might be involved in the negotiation. The case arose over an account concerning payment for 160 weeks and 2 days' work between 1749 and 1754. The defendant, another female mantua maker who employed her, admitted that she had paid the plaintiff £48 17 s. 3d. after a rate of 6 s. a week, while the plaintiff claimed her work was worth 8 s. Various other master mantua makers as well as servants were called as witnesses to determine what different work was worth. Wages ranged between 6 s. to 10s. 6d. a week depending on ability to plait. Seamstresses earned less, and a woman could earn more if she could do multiple tasks. Wages were also affected by the worker's reputation for the quality of her work. One master mantua maker who kept 19–20 servants also claimed she provided breakfast, and paid her workers more in the mornings, although she did not explain why. A male master claimed that the common wages for a journeywoman were 6 s. a week with 2d. a day for breakfast, while another claimed he did not give so much wages to men as woman mantua makers 'because we don't want such extraordinary hand.' It was also established that male workers who were skilled at plaiting earned 15 s. a week because it was claimed they could do twice the work, which presumably meant they worked twice as long if they were not as skilled. In the end, the court awarded wages of 7 s. a week, which it decided was the 'common' payment in the trade for the plaintiff's skill, which had to be accepted when no agreement could be reached between the bargaining parties.[96] William Hutton also claimed that in Birmingham wages fluctuated with fashion, and that journeymen would earn more when something new was in high demand, and less when it became more widely produced. As a result, the fluctuation of wages was 'a constant source of wrangling between master and man.'[97]

It is thus unsurprising that poor households would run up debts to the maximum extent possible to optimise their limited ability to make ends meet.[98] Since, as a proverb of the time had it, '*Sue a Beggar, &c.* and they have nothing to lose, their punishment will ne'r make you satisfaction'

many must of felt they had little to lose by being in debt.[99] According to William Hutton, the judge and chronicler of the Birmingham Court of Requests, Birmingham abounded with cases of wives whose husbands had left them because of debts. Since these poor women with children to support could not earn enough through their own labour, they had to survive by using,

> every species of finesse …to overreach those who trade in the necessities of life. She subsists by a little ready money and a little credit. The money is temporary, the credit eternal. Her depredations are chalked upon every huckster's door in the neighbourhood.

If a shopkeeper tried to sue her, however, a separated or abandoned wife could plead that in law she was still married and could not be sued for debts which were legally her husband's responsibility under coverture.[100] In this way, exploiting credit which might not be repaid was one essential part of the strategies of survival of poorer households, and these debts very often exceeded income by wages or other makeshift work which was unpredictable.[101] As Hutton put it on another occasion, a debt,

> may be trusted with him who *has*, but to trust it with him who has not, is like trusting it to the bottom of sea. In the commercial world, a rich knave is preferable to a poor honest man; one pays in money, the other in promises.[102]

He also complained that even though skilled artisans in Birmingham could earn 10s. to two guineas a week wages, many spent this and had little left but promises for their landlords, a fact that has its analogue in the increasing payment of rents by poor law authorities in the eighteenth century. In this case, Hutton argued, their poverty was their security as they had little to distrain and the expense of ejectment or imprisonment was too great. Modern historians have been more cautious, noting increasing distraint in most areas by the 1760s. Pauper letters also suggest that the threat of distraint loomed large. Nonetheless, because the number of small houses built to be rented was great, landlords had to rent to those who might not pay. It was the same for shopkeepers; competition forced them to sell on credit if they wanted business. In his history of the

parish of Myddle in Shropshire, Richard Gough singled out poor, honest, households for praise. However, this was the judgement of someone successful, and for many poor households bad fortune such as injury, death, unemployment, or an unpaid debt could make their efforts worthless in a stroke.[103] As a result, manipulating credit, customary entitlements, and charity could have been a more realistic option than honesty and forbearance, especially when need was pressing.

Conclusion

A local economic system inhibited by lack of cash; a labour market which was inextricably tied up within a complex economy of makeshifts; and a remuneration system pervaded by customary entitlements and distorted by the existence of complex credit networks, created many problems for the entrepreneur. As we know from the Industrial Revolution literature, it was difficult in the 1770s to recruit industrial labour, to improve its productivity and output, and to make effort a contractual obligation. It is no surprise, then, to see attempts to rationalise payment towards greater, but less negotiable wages on the part of masters from an early date. One of the first to attempt to do this was Ambrose Crowley, as can be seen in the law book of his late seventeenth-century ironworks. Crowley has become famous for attempting to implement a 'modern' type of factory discipline and accountable organisation at a very early date.[104] The organisation of his works, however, was still very contemporary in that labour was negotiated on an individual basis, and the law book goes into great detail on how the value of different types of work was to be reckoned on a weekly basis.[105] But in order to reduce the complexity of such reckonings and to make them more amenable to central accounting, he attempted to forbid lending money or equipment to his workmen, which he claimed made them 'negligent, extravagant and delayed their reckonings' and which 'brought disorder upon the Cashier, by answering the workmen's solicitations in lending and correcting payments.'[106] Crowley realised that to prevent this he would have to pay regular wages, and part of his system of reckoning was to make deductions for equipment and his many fines upfront to reduce the amount

paid every week. But even so the supply of money was not enough for an organisation of such scale, and long before the advent of county banks he claimed he printed his own current bills 'to the end that they might be valued in all places better than money.'[107] In addition, to prevent borrowing because of poverty, he set up his own poor relief system.[108]

Peter Linebaugh has also argued that the 'right' of workers in the Royal Navy dockyards at Deptford to take chips of wood left over from the carpentry in the yard came under attack from the administrators of the dockyards who attempted to replace the right to chips with an increase in wages, so as to make the operation more 'accountable' and cost-effective as the importance of keeping proper accounts grew. But, the Yard was one of the largest employers in the country, employing 900 men and boys in peacetime and 1200 during war, and it was no easier for the Navy to find cash to pay dockyard workers, when sailors were not being paid, so it is not surprising that workers resisted these attempts.[109] The subject of how such rationalisation was achieved, in the face all the problems outlined here, is a crucial aspect of factory organisation which obviously needs to be addressed. The importance of this question is further emphasised if we consider that the concept of the wage which has been criticised here is as much a product of a certain form of industrial organisation in which an efficient money supply is to a large extent taken for granted. In this sense, the 'modern' wage in is some measure ideological in that, in conception at least, it is supposed to be a measurement of one person's income meant to replace the negotiated survival economy of makeshifts, outdoor relief, and credit manipulation.[110]

Notes

1. Michael Sonenscher, 'Work and Wages in Paris in the Eighteenth Century', in Maxine Berg, Pat Hudson and Michael Sonenscher (eds.), *Manufacture in Town and Country Before the Industrial Revolution* (Cambridge, 1984), p. 147.
2. L.D. Schwarz, 'The Formation of the Wage: Some Problems' in Peter Scholliers (ed.), *Real Wages in Nineteenth and Twentieth Century Europe: Historical and Comparative Perspectives*, (Oxford, 1989), pp. 21–39.

3. Peter Linebaugh, *The London Hanged: Crime and Civil Society in the Eighteenth Century* (London, 1991), pp. 371–401; Donald Woodward, *Men at Work: Labourers and Building Craftsmen in the Towns of Northern England, 1450–1750*, (Cambridge, 1995), ch.5.
4. Although in some places the wage might be the centrepiece of family welfare. A. Janssens, *Family and social change: the household as a process in an industrializing community* (Cambridge, 1993).
5. J. Innes, 'The "mixed economy of welfare" in early modern England' in M. Daunton, (ed), *Charity, self-interest and welfare in the English past* (London, 1996); T. Sokoll, 'Old age in poverty: the record of Essex pauper letters 1780–1834' in T. Hitchcock, P. King and P. Sharpe (eds), *Chronicling poverty: The voices and strategies of the English poor 1640–1840* (Basingstoke, 1997), pp. 127–54.
6. This meant, in comparison to the Parisian artisans studied by Sonenscher, wage payments in England were more bound up with a contractual market economy. The right to the necessities of life provided by the natural law of self-preservation was supplied by access to credit rather than being bound up with a set of rights associated with specific trade organisations. Sonenscher, 'Work and Wages', p. 156.
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8. OED xix, p. 803
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