



## INTRODUCTION

# Introduction: Wage Systems and Inequalities in Global History

Hélder Carvalhal<sup>1</sup> , Jan Lucassen<sup>2</sup>, Judy Z. Stephenson<sup>3</sup> and Pim de Zwart<sup>4</sup> 

<sup>1</sup>Department of History, Uppsala University, Uppsala, Sweden, <sup>2</sup>International Institute of Social History, Amsterdam, The Netherlands, <sup>3</sup>The Bartlett School of Sustainable Construction, University College London, London, United Kingdom and <sup>4</sup>Economic and Environmental History Group, Wageningen University, Wageningen, The Netherlands

**Corresponding editor:** Pim de Zwart, e-mail: [pim.dezwart@wur.nl](mailto:pim.dezwart@wur.nl)

### Abstract

For two decades, real wage comparisons have been centre stage in global socio-economic history studies of comparative development, offering a tractable – if oversimplified – gauge of living standards. But critics argue that these studies have leaned too heavily on the earnings of male, urban, unskilled, daily wage labourers, overlooking wage disparities between social groups and the mechanics of how wages were paid. This Special Issue attempts to shift the focus to overlooked groups and “wage systems” – the methods behind pay determination – and their role in deepening or mitigating inequality. This introduction attempts a global overview of the long-term developments in real wage studies, highlighting methodological innovations and challenges over recent decades. It also explains how the various articles in this Special Issue, spanning topics from medieval Europe to colonial India, contribute to this field. We argue that wage systems – and the inequalities they breed – played out in ways as varied as history itself, so comparing material living standards across time and space remains a complex calculation. We plead for a two-pronged approach: the continued study of all types of income of all working people, alongside a new focus on the social norms, institutions, and systems that determine the opportunities for individuals to acquire an income. A consolidated bibliography of all references in this Special Issue may help future research.

## The Role of Wages in Understanding Wage Inequality

Recording, analysing, and comparing wages on a national and international scale has been ongoing since the late eighteenth century. The main aim of such activity was, and remains, to create a proxy for national income, the wealth of a nation, and its living standards, or to evaluate income differentials across regions or groups (or both). The first question is mainly addressed by economists and economic historians who use wage data as building blocks for the reconstruction of national economies; the second by social scientists and social historians who are mainly interested in questions

© The Author(s), 2025. Published by Cambridge University Press on behalf of Internationaal Instituut voor Sociale Geschiedenis. This is an Open Access article, distributed under the terms of the Creative Commons Attribution-NonCommercial licence (<http://creativecommons.org/licenses/by-nc/4.0>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original article is properly cited. The written permission of Cambridge University Press must be obtained prior to any commercial use.

of social inequality.<sup>1</sup> Whereas once the question of relative development in living standards dominated research agendas, now the question of inequality is of rising interest.

The question of inequality implies not just difference, but a lack of justice, “equity”, or fairness. Comparisons through time and space are central to the question of inequality in both economic and social historical approaches: is the income of workers in any given state or region better or worse than others in the past or present? How do wage workers fare compared to others, in particular self-employed peasants and artisans, or the enslaved?<sup>2</sup> Are social and income inequality (or differences between social strata) increasing or decreasing? The economic approach looks for explanations in the relative factor endowments between capital and labour, and technological development (with associated questions of education, skill development, or “human capital”), where, in the words of Jan Luiten van Zanden, “relative prices and wages are crucial sources of information about the structure of the economy and its level of development”.<sup>3</sup> In the social approach, often associated with labour history, class is generally the unit of analysis, and explanations are frequently stated in terms of class relations under capitalist production and institutions that support or impede labour’s bargaining power.<sup>4</sup> The former approach assumes that, with economic activity, there can be equity. The latter assumes that can never be the case.

Researchers in both traditions have therefore grappled with the fundamental question of why inequalities in labour income develop and how they occur. Recent studies of relative wages have been characterized by a growing critique that economic approaches put too much weight on the incomes of male, urban, unskilled, daily wage labourers, and that insufficient attention has been paid to wage differentials between different social groups as well as in what form or manner wages were paid. In all societies, there is often a substantial difference in wages paid to different groups. It used to be that the standard explanation for labour market distortions was gaps or differences in productivity. However, increasingly, there is interest in how wage discrimination is associated with societal norms, formal and informal institutions, legal and corporal coercion, or rules. This can be approached as wage discrimination, or via gender, ethnic, race, class, or in terms of caste premiums on wages. The collection of essays in this Special Issue is motivated by the observation that productivity is not an adequate explanation for the great wage and income differentials between sectors and groups seen in history, and that historians must continue to research more complex drivers. Here, we

<sup>1</sup>Recent examples for the first are the work of Robert 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), pp. 411–447; Jan Luiten van Zanden, “The Skill Premium and the ‘Great Divergence’”, *European Review of Economic History*, 13 (2009), pp. 121–153; Jan Luiten van Zanden, Joerg Baten, Marco Mira d’Ercole, Auke Rijpma, Conal Smith, and Marcel Timmer, *How was Life? Global Well-Being since 1820* (Geneva and Amsterdam, 2014); of the latter, Thomas Piketty, *Capital in the Twenty-First Century* (Cambridge, MA, 2014); Jan Lucassen, *The Story of Work: A New History of Humankind* (New Haven, CT, and London, 2021).

<sup>2</sup>Lucassen, *The Story of Work*.

<sup>3</sup>Van Zanden, “The Skill Premium”, p. 121; Robert A. Margo, *The History of Wage Inequality in America, 1920 to 1970* (November 1999), Jerome Levy Econ. Institute Working Paper No. 286, available at SSRN: <https://dx.doi.org/10.2139/ssrn.193976>.

<sup>4</sup>Marcel van der Linden, *Workers of the World: Essays towards a Global Labour History* (Leiden, 2008).

highlight the role of “wage systems” – the methods adopted by employers for the formation or calculation of wages – and how these influenced differences in the level of reward to labour for given effort or input. It is fitting to explore this in a Special Issue of the *International Review of Social History*, a journal with a long tradition in both approaches from a truly global perspective.

How large labour wage differentials were, how they developed over time, and how they compare across space or regions and between different groups or segments of the labour force is the necessary starting point of this Special Issue. Intimately linked to these questions are the methodological challenges inherent in researching the matter of wages – economists expect wages to be hard economic data, an observable and known cost of production with measurable purchasing power. But historians know that the components of a wage, or wage formation, can include ephemeral, tacit, temporal, and indeterminate rewards. As such, scholars have had to directly deal with the interpretation of sources and their meaning within the wider question of wage formation.<sup>5</sup> This is never more the case than in non-European regions, where wage series and data have mostly been collected or assembled for only the most recent period, and are biased towards European colonial organizations that paid out in standard but locally atypical ways. Whether this obscures a holistic or true understanding of the value of those payments and hinders a real perception of the nature of labour markets, especially in the case of early colonies, remains a question that continues to challenge economic historians.

The existence of such colonial organizations as employers also raises the topical question of whether or not a wage paid by a powerful or militarized institution can ever be thought of as a “market wage”. To what extent could these colonial organizations dictate prices and wages? What, more generally, should we consider about the difference between wages paid by them and small private producers, or other large organizations, such as the Church? To what extent is it safe or useful for analysis to assume a universally smoothly functioning labour market if we are interested in a comparative perspective? Is there any way to evaluate, understand, and compare regional power relationships across time and space? In economic and social history, the question of how different institutions in society determine access to the labour market and just rewards from it for different groups according to age, gender, marital status, group membership, or other characteristics, such as “race”, is understudied but increasingly relevant.<sup>6</sup>

The different contributions in this volume cover important parts of the world over a period of seven centuries and embrace microeconomic and macroeconomic themes. They deal directly with the following issues:

- The composition of household incomes, individual wages, and the relationships between them.

<sup>5</sup>Or the form in which a wage is paid. For a definition of the term and discussion, see Peter Scholliers and Leonard Schwarz, “The Wage in Europe since the Sixteenth Century”, in Scholliers and Schwarz (eds), *Experiencing Wages: Social and Cultural Aspects of Wage Forms in Europe since 1500* (New York/Oxford, 2003), pp. 3–27; also Margo, “The History of Wage Inequality”, pp. 1–4.

<sup>6</sup>Lucassen, *The Story of Work*.

- The extent to which the “bare bones” definition of a consumption basket, as it has appeared in many recent real wage studies, is universal for all humans, or at least for all wage earners.
- Social position, status, social contributions (taxes, including *corvée*), and their relationship to wage income, as well as gender, ethnic, and caste variations in wage levels.
- The position (and share) of wage workers’ households in the economy as a whole, combined with the representativeness of the incomes of wage labourers for reflecting broader trends in the economy.
- Seasonality, unemployment, by-employment, and uncertainty of contract (precarity).
- Source bias, and the availability and quality of wage data according to economic sectors, gender, and ways of remuneration (including working time per day and per year).
- The relative importance of in kind and non-monetary labour rewards and the factors that influence variations in types of payments.

The spatial and temporal scope of this Special Issue is large, with contributions ranging from medieval Europe to India in the 1920s and 1930s. It is not meant to be exhaustive. Instead, we aim to show that many issues pertaining to wage systems and inequalities played out differently in different periods and places. Thus, the Special Issue highlights both the possibilities and difficulties of developing comparable estimates of material living standards in global history.

This Special Issue directly engages with a large literature in global social-economic history, which has emerged over the past two decades. These works compare real wage rates as a way to assess differentials, inequalities, and trends in the standard of living across the globe. The pioneering work of Robert Allen related daily wage rates of urban construction labourers to a basket of consumption goods reflecting subsistence level. By converting both nominal wages and prices into grams of silver, he made wage records from different parts of the world comparable.<sup>7</sup> Furthermore, Allen created a “bare bones” or “subsistence” basket, containing sufficient amounts of nutrients (in terms of calories and protein), mainly from the cheapest available staple food, in addition to smaller quantities of meat or fish as well as some clothing, light, and heating. By adding baskets for other family members, as well as assuming a fixed budget share for rent, male wages were set off against the costs of maintaining a family at the subsistence level of consumption.<sup>8</sup>

The remainder of this Introduction to the Special Theme is structured as follows. In the next section, “Trends in Global Real Wages”, we will discuss some of the main results on the long-term trends and comparative levels of real wages that have been published over the past two decades. In “Methodological Problems and Achievements”, we discuss the various issues pertaining to the methodology of

<sup>7</sup>Allen, “The Great Divergence in European Wages”; *The British Industrial Revolution in Global Perspective* (Cambridge, 2009); “The High Wage Economy and the Industrial Revolution: A Restatement”, *The Economic History Review*, 68 (2015), pp. 1–22.

<sup>8</sup>Allen, “The High Wage Economy”, p. 3.

comparing real wages globally. This section is structured around the questions noted earlier. In both these sections, we highlight the various contributions of the papers in this Special Issue. The concluding section, “Outlines of a New Perspective on Wage and Income”, draws on our reflection on the literature and the contributions to this Special Issue to outline our agenda for future research on historical wages and income.

### Trends in Global Real Wages

Following the work by Allen, the last two decades have seen a large research programme of gathering and analysing new evidence on (male, urban, casual, construction) wages and prices in all parts of the world, and a literature on how to assess and compare levels and trends in the incomes of the labouring classes. Long-term data now cover a large part of the world for the pre-industrial period, and these figures have tremendously increased our understanding of the extended global history of living standards.<sup>9</sup> Early studies suggested a profound divergence in real wages in the early modern period,<sup>10</sup> where the real silver wages and welfare ratios of workers in north-western Europe rose compared with those of the rest of Europe in the sixteenth century, and way above the rest of the world soon afterwards.

Newer data from Europe across the early modern period now suggest that it was only from about 1720 that north-western Europe (that is England, the Netherlands, and northern parts of Germany) diverged from the rest of Europe.<sup>11</sup> While areas such as Poland, Portugal, Sweden, and Denmark may have started to lag behind earlier,<sup>12</sup> the latest evidence on France, Italy, and Spain suggests that the gap opened up between 1700 and 1720, respectively.<sup>13</sup> The question of wage inequality in Europe is therefore a finely tuned and developing one.

Research on Asia has long indicated that there was a relatively early “Great Divergence” between north-western Europe and different parts of Asia. This view is

<sup>9</sup>The paragraphs that follow build on Pim de Zwart, “The Long-Run Evolution of Global Real Wages”, *Journal of Economic Surveys* (2023), pp. 1–28.

<sup>10</sup>E.g., Allen, “The Great Divergence”.

<sup>11</sup>Ulrich Pfister, “The Timing and Pattern of Real Wage Divergence in Pre-Industrial Europe: Evidence from Germany, c.1500–1850”, *The Economic History Review*, 70 (2017), pp. 701–729.

<sup>12</sup>Mikolaj Malinowski, “Little Divergence Revisited: Polish Weighted Real Wages in a European Perspective, 1500–1800”, *European Review of Economic History*, 20 (2016), pp. 345–367; Leonor Freire Costa, Nuno Palma, and Jaime Reis, “The Great Escape? The Contribution of the Empire to Portugal’s Economic Growth, 1500–1800”, *European Review of Economic History*, 19 (2015), pp. 1–22; Kathryn Gary, “Work, Wages, and Income: Remuneration and Labor Patterns in Southern Sweden, 1500–1800” (Ph.D., Lund, 2018); Kathryn Gary and Cristina Radu, “The Impact of Border Changes and Protectionism on Real Wages in Early Modern Scania”, *EHES Working Paper* (2018).

<sup>13</sup>Leonardo Ridolfi, “Six Centuries of Real Wages in France from Louis IX to Napoleon III: 1250–1860”, *Journal of Economic History*, 79 (2019), pp. 589–627; Vincent Geloso, “Were Wages that Low? Real Wages in the Strasbourg Region before 1775”, *Journal of Interdisciplinary History*, 48 (2018), pp. 511–522; Ernesto López Losa and Santiago Piquero Zarauz, “Spanish Subsistence Wages and the Little Divergence in Europe, 1500–1800”, *European Review of Economic History*, 25 (2021), pp. 59–84; Paolo Malanima, “When did England Overtake Italy? Medieval and Early Modern Divergence in Prices And Wages”, *European Review of Economic History*, 17 (2013), pp. 45–70; Mauro Rota and Jacob Weisdorf, “Italy and the Little Divergence in Wages and Prices: New Data, New Results”, *Journal of Economic History*, 80 (2020), pp. 931–960.

corroborated by much of the recent real wage data, which indicate that, from around 1530, real wages in China, specifically Beijing and the Yangtze Delta, were already low relative to the levels in north-western Europe, although it has long been contested that living standards more generally were no lower until 1750.<sup>14</sup> Further, the data show a consistent decline in real wages in China during the eighteenth and the first half of the nineteenth century, and with no increase until after the 1850s. In Japan, real wage rates for unskilled rural workers were even lower between 1400 and 1870, making these workers “among the poorest people recorded in history”.<sup>15</sup> Japanese real wages were clearly in decline up to about 1720, recovering to their early 1600s levels by 1800. The recent evidence on India indicates that comparative real wages already lagged behind those of Europe in the sixteenth century.<sup>16</sup> The contribution by Carvalho and Lucassen in this Special Issue provides further evidence on wages in India, using Portuguese sources for the seventeenth century; a period that had remained largely obscured in terms of wage data.

However, real wages in West Africa seem to have been significantly above those in Tokyo and Beijing in the late nineteenth and early twentieth centuries, and rose over the colonial era.<sup>17</sup> In British East Africa, real wages were generally lower in this period, but still above subsistence levels, and they exhibited an upward trend between the 1900s and 1960s. South African real wages were already towards the upper end of the African wage scale in the late nineteenth century.<sup>18</sup> The South African evidence clearly points to high levels and rising wage inequalities between native and European workers during this time. The article by Green and Links in this Special Issue introduces new evidence for indigenous Khoisan workers in Southern Africa

<sup>14</sup>Robert C. Allen, Jean-Pascal Bassino, Debin Ma, Christine Moll-Murata, and Jan Luiten van Zanden, “Wages, Prices, and Living Standards in China, 1738–1925: In Comparison with Europe, Japan, and India”, *Economic History Review*, 64 (2011), pp. 8–38; Ziang Liu, “Wages, Labour Markets, and Living Standards in China, 1530–1840”, *Explorations in Economic History*, 92 (2024), pp. 1–25. Kenneth Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World Economy* (Princeton, NJ, 2000).

<sup>15</sup>Yuzuru Kumon, “The Labor-Intensive Path: Wages, Incomes, and the Work Year in Japan, 1610–1890”, *The Journal of Economic History*, 82 (2022), pp. 368–402, 398.

<sup>16</sup>Robert C. Allen, “India and the Great Divergence”, in Timothy J. Hatton, Kevin H. O’Rourke, and Alan M. Taylor (eds), *The New Comparative Economic History: Essays in Honor of Jeffrey G. Williamson* (Cambridge, MA, 2007), pp. 9–32; Stephen Broadberry and Bishnupriya Gupta, “The Early Modern Great Divergence: Wages, Prices and Economic Development in Europe and Asia, 1500–1800”, *The Economic History Review*, 59 (2006), pp. 2–31; Pim de Zwart and Jan Lucassen, “Poverty or Prosperity in Northern India? New Evidence on Real Wages, 1590s–1870s”, *The Economic History Review*, 73 (2020), pp. 644–647; Jan Lucassen and Radhika Seshan (eds), *Wage Earners in India 1500–1900: Regional Approaches in an International Context* (New Delhi, 2022); Helder Carvalho, Jan Lucassen, and Pim de Zwart, “After da Gama: Real Wages in Western India, c.1500–c.1650”, *European Review of Economic History*, 28 (2024), pp. 311–334.

<sup>17</sup>Ewout Frankema and Marlous van Waijenburg, “Structural Impediments to African Growth? New Evidence from Real Wages in British Africa, 1880–1965”, *Journal of Economic History*, 72 (2012), pp. 895–926.

<sup>18</sup>Pim de Zwart, “South African Living Standards in Global Perspective, 1835–1910”, *Economic History of Developing Regions*, 26 (2011), pp. 49–74.

in the early nineteenth century. Their study shows the dynamics of wage inequality also among the Khoisan.

In early modern South America, real wages were somewhere between the levels of Europe and Asia, although in some areas they have been higher than those in the former.<sup>19</sup> Mexican real wages first rose from the sixteenth century to the mid-eighteenth century and then declined as the population grew, but in early eighteenth-century Mexico City (when they were at their height) real wages surpassed those in most parts of Europe, while those in Argentina were remarkably high, as a result of very high land/labour ratios in the late eighteenth and much of the nineteenth centuries.<sup>20</sup> In the seventeenth and eighteenth centuries, real wage levels in North America were often higher than those prevailing in north-western Europe and were also generally (substantially) higher than in Southern America. Especially in Philadelphia, workers enjoyed high real incomes. Real wages in northern America increased rapidly: in Boston they tripled between the mid-seventeenth and early nineteenth centuries.<sup>21</sup>

All this evidence for a rather early and varied divergence of wage levels between north-western Europe and “the Rest” reveals a far more complex question than whether there was inequity or inequality. It reminds us that the distance between levels in Southern Europe and most parts of Asia was not that impressive until about 1700. This suggests that some of these inequalities may have predated unequal power relations in the form of rising colonialism since the “Great Discoveries”. The debate linking living standards and colonialism has been overly dominated by the appalling income cleavages between the victorious imperialist West and the subdued “Rest” in the nineteenth century, and plantation economies in particular.

While most of this research has been devoted to the reconstruction of long-term comparative trends across different parts of the globe, there have been varying perspectives about the key drivers of these trends. Demographic shifts and migration (often changing the land/labour ratio), labour market institutions and associated wage payment systems (including the introduction and abolition of unfree labour; see the subsection “Labour Markets”), and developments in trade, have traditionally been considered significant factors influencing real wage levels and long-term trends.<sup>22</sup> However, the extent of their importance remains less clear than often assumed.

Take the example of Japan (as mentioned earlier), which had the “poorest people in history” between 1400 and 1870.<sup>23</sup> Thanks to excellent demographic data, we may be fairly sure that its population grew rapidly in the early-modern period, leading to a decreasing availability of arable land per capita. The increase in commercial, non-agricultural activities, often called the “Industrious Revolution”, provided

<sup>19</sup>Leticia Arroyo Abad, Elwyn Davies, and Jan Luiten van Zanden, “Between Conquest and Independence: Real Wages and Demographic Change in Spanish America, 1530–1820”, *Explorations in Economic History*, 49 (2012), pp. 149–166.

<sup>20</sup>*Ibid.*

<sup>21</sup>Allen *et al.*, “Wages, Prices, and Living Standards in China”.

<sup>22</sup>See De Zwart, “The Long-Run Evolution”.

<sup>23</sup>Kumon, “The Labor-Intensive Path”.



substantial extra sources of income.<sup>24</sup> As this simple example shows, labour participation (at the extensive and intensive margin) rather than pure wage levels is crucial for understanding long-term living standard developments. A similar argument could be made for variations in terms of labour contracts. Whereas the great majority of wage data, collected so far for historical comparisons, pertain to individual time wages mostly in “day rates”, there is a great deal of evidence that collective piece wages were predominant in different economic systems, and were usually part of different labour relations, reliant on self-enforcing mechanisms rather than direct supervision.<sup>25</sup>

Pertinent to this distinction, but much less investigated and developed in the literature, is the study of wage systems as another potential driver of wage inequalities within countries. Wage systems – defined as the methods adopted by employers for the formation of the wage – can be a key source of difference in the level of reward to labour for given effort or input. Wage systems identify a component with which to measure labour’s work or input. Those components are usually based on a time reward, a task reward, or a piece reward, or a combination of all three. Many wages have more than one component – for example, remuneration is paid per day, or per unit of output, or per task – but there is an incentive for quality or an allowance for hindrance.<sup>26</sup> Contractual and cultural institutions around time (corvee, serfdom), types of task (caste-, class-, gender-determined), and price setting of pieces of output form well-understood and often persistent or rigid wage systems that become culturally accepted restraints on certain groups or sectors, driving a wedge between the payment for work at a given level of skill in one industry or another, or for one age group, gender, or race over another.<sup>27</sup> For instance, task type wages systems fix the output of labour for a unit of wage but require labour to vary the effort input according to seasonal or market disruptions. In the past, most time-based systems involved labour submitting to high levels of supervision but these were also usually short term, leaving labour without security of tenure.

Within-country wage inequalities can also, of course, result from variations in skill and education, but history suggests that discrimination along lines of gender and race embedded in wage systems also determined access to labour market rewards.<sup>28</sup> For

<sup>24</sup>Jean-Pascal Bassino, Stephen Broadberry, Kyoji Fukao, Bishnupriya Gupta, and Masanori Takashima, “Japan and the Great Divergence, 730–1874”, *Explorations in Economic History*, 72 (2019): pp. 1–22.

<sup>25</sup>See Lucassen, *The Story of Work*, pp. 223–226, 298–304; Gijss Kessler and Jan Lucassen, “Labour Relations, Efficiency and the Great Divergence: Comparing Pre-Industrial Brick-Making across Eurasia, 1500–2000”, in Maarten Prak and Jan Luiten van Zanden (eds), *Technology, Skills, and the Pre-Modern Economy in the East and the West: Essays Dedicated to the Memory of S.R. Epstein* (Leiden/Boston, 2013), pp. 259–322. See also Schneider in this issue.

<sup>26</sup>David F. Schloss, *Methods of Industrial Remuneration* (New York/London, 1892).

<sup>27</sup>See the discussion in the Introduction to George Grantham and Mary MacKinnon (eds), *Labour Market Evolution: The Economic History of Market Integration, Wage Flexibility and the Employment Relation* (London, 2002); and also in Peter Scholliers and Leonard Schwarz (eds), *Experiencing Wages: Social and Cultural Aspects of Wage Forms in Europe since 1500* (New York/Oxford, 2003), pp. 13–16.

<sup>28</sup>S. Watanabe, “The Japan Model and the Future of Employment and Wage Systems”, *International Labour Review*, 139 (2000), p. 307; Arman Jayady, Priyo Subekti, Alexey V. Smyshlyaev, Olga N. Protasova, and Ruly Artha, “Salary Scale and the Diversity of Wage Systems”, *Linguistics and Culture*



South Africa, for instance, it is clear that there was significant racial discrimination in shaping the level of wages and wage differentials. Wages of wagon drivers in nineteenth-century Natal (in the south-east of South Africa) show that even within this same occupation, in which productivity was mainly dependent on the walking speed of an ox, Europeans earned three times as much as Africans.<sup>29</sup>

### Methodological Problems and Achievements

Not only has research expanded in terms of geographical coverage, but various contributions to the real wage literature have also made crucial contributions regarding the methodology. In this section, we highlight those contributions but also show the limitations and critiques. The essays gathered here further contribute to these methodological issues.

### Consumer Baskets

Comparing the real value of wages over time and across regions poses significant challenges. For instance, how can one compare the income of a medieval Swedish worker, who used wax candles and firewood, experienced highly seasonal employment, and counted herring an important source of protein, with a twentieth-century factory worker who worked year-round and relied on electricity? Similarly, how does one compare the diet of an eighteenth-century English worker, accustomed to beef and beer, with that of a Chinese labourer who ate rice and fish?

Because the landmark early attempt at long-run real wage analysis by Phelps Brown and Hopkins found that real wages in England only surpassed those of the 1450s by about 1900, a debate on how much workers' living standards improved during the Industrial Revolution led to an ongoing research programme of the questions of indexation of wages and goods prices, and the composition of the "basket" of consumption goods.<sup>30</sup> As Charles Feinstein noted in 1998, such methodological concerns meant that simple adjustments to prices or baskets, rather than any new wage data, drove most new findings in the field for a couple of decades.<sup>31</sup> Feinstein, for example, changed the weights of his basket to account for the fact that cotton textiles steadily became more important than woollen cloths over the eighteenth and nineteenth centuries.<sup>32</sup> Such additional evidence on changes in consumption patterns over time will improve the accuracy of real wages series in one particular country, allowing for a more precise indication of periods of rising and falling real wages. However, this increased accuracy comes at the cost of relying on more

*Review*, 5:S1 (2021), pp. 293–302; Michel Korzec and Martin King Whyte, "Reading Notes: The Chinese Wage System", *The China Quarterly*, 86 (1981), pp. 248–273; Margo, *The History of Wage Inequality*.

<sup>29</sup>De Zwart, "South African Living Standards".

<sup>30</sup>Henry Phelps Brown and Sheila V. Hopkins, *Seven Centuries of the Prices of Consumables, Compared with Builders' Wage-Rates* (London, 1956).

<sup>31</sup>Charles H. Feinstein, "Pessimism Perpetuated: Real Wages and the Standard of Living in Britain during and after the Industrial Revolution", *Journal of Economic History*, 58 (1998), pp. 625–658.

<sup>32</sup>Feinstein, "Pessimism Perpetuated", pp. 638–641; R.C. Allen, "Real Wage Rates (Historical Trends)", in *The New Palgrave Dictionary of Economics* (London, 2008).

detailed and evolving country-specific price indices, making international comparisons more difficult.

Therefore, a lack of standardization in the early 1990s hindered reliable comparative analysis of real wage levels even among the relatively well-documented European countries in the period after the Industrial Revolution.<sup>33</sup> An important early contribution by Jan Luiten van Zanden to assess real wages over a long time period across a variety of countries in Europe, between 1500 and 1800,<sup>34</sup> made the vital comparison of the purchasing power of wages in terms of the amount of grain they bought. Later, similar comparisons also included India.<sup>35</sup> These grain-based studies revealed a remarkable result: economies such as those of Poland and Sweden, which had been characterized as relatively backward in gross domestic product (GDP) per capita terms, owing to, for instance, low literacy rates, generally had higher grain wages than more “developed” areas, such as England and the Low Countries.<sup>36</sup> This upended the idea that there was a straightforward relationship between economic development and the level of grain wages. Based on the case of India, it was argued that the relatively high grain (rice and wheat) wages but low nominal wages (expressed in silver grams) reflected a high share of the agricultural employment and a low share of trade or slower commercialization.<sup>37</sup> Naturally, as a consequence, this calls for a cost of living index that includes a larger variety of goods in order to reflect a measure of broader patterns of consumption, including manufactured products (such as clothing).

A major innovation, one that has spurred many contributions on real wages since, has been Allen’s development of a consumption basket based on necessary nutritional intake (as noted earlier).<sup>38</sup> The aim of this methodology was to compare purchasing power of workers in the same region over time, as well as the purchasing power of similar workers in different regions. In order to do so, a basket was defined that delivered the necessary nutrients, some 1940 kcal and 40 grams of protein per day, mainly from the cheapest available staple in a region, in addition to required clothing and fuel (for heating and lighting). By defining a basket in this way, it was possible to compare the value of the wage relative to a sort of poverty line. To include costs of other family members, the basket was multiplied by three to allow for subsistence of a spouse and two children (who were assumed to consume about half a basket each). By assuming all workers worked, on average, 250 days per year, it was possible to see whether a male wage earner was able to support his family at subsistence level.

Initially, the basket for European workers was relatively luxurious (and therefore later named the “respectability basket”): it contained large amounts of bread, as well as substantial volumes of meat, beans, cheese, eggs, and beer. From the first set of

<sup>33</sup>Peter Scholliers and Vera Zamagni, “Introduction”, in Scholliers and Zamagni (eds), *Labour’s Reward: Real Wages and Economic Change in 19th- and 20th-Century Europe* (Aldershot, 1995), p. 9.

<sup>34</sup>Jan Luiten van Zanden, “Wages and the Standard of Living in Europe, 1500–1800”, *European Review of Economic History*, 2 (1999), pp. 175–197.

<sup>35</sup>Broadberry and Gupta, “The Early Modern Great Divergence”.

<sup>36</sup>Van Zanden, “Wages and the Standard of Living”.

<sup>37</sup>Broadberry and Gupta, “The Early Modern Great Divergence”.

<sup>38</sup>A seminal study is Allen, “The Great Divergence in European Wages”.

global real wage comparisons, however, it became clear that this basket, while probably fitting with the consumption pattern of eighteenth-century Britons, was too luxurious to use as a standard for most other parts of the globe.<sup>39</sup> Therefore, recent studies have used a much more modest “bare bones” basket, based on grains (eaten in porridge) rather than bread and beer, and containing smaller quantities of other necessities. This basket more clearly reflects consumption patterns of those workers in poor societies that are very close to subsistence level.

These baskets originally provided some 1940 kcal per person per day. Recent research on energy requirements, examining the daily nutrients needed for both paid labour and household tasks, indicated that this original estimate was too low,<sup>40</sup> and the basket was revised to 2100 kcal per person per day.<sup>41</sup> Additionally, the household multiplier was increased from three to four to better account for the nutritional needs of family members.<sup>42</sup> The overall amount of kcal per family thus increased by some forty per cent from 5820 to 8400. Some recent studies even considered this higher number of kcal too low and have increased it further.<sup>43</sup> Other studies indicate that this updated basket more accurately reflects the subsistence line, even in modern developing societies, and offers a more precise measure of poverty than the World Bank’s \$1.25 threshold.<sup>44</sup> However, this cost of living index still represents a very minimal standard of living, lacking some essential vitamins and minerals.<sup>45</sup>

These adjustments lowered overall real wage levels but, as applied globally they did not affect long-term trends or comparisons of living standards across regions. To avoid making assumptions about family size and household composition, several new contributions simply asked the question of how many daily subsistence baskets a man’s (unskilled) day wage could purchase.<sup>46</sup> This, expressed as a “welfare ratio”, allows one to see how many additional family members such a wage would sustain. In this Special Issue, Marco-Gracia and Delgado investigate household standard of living in Zaragoza, Spain, in 1924, compared with relatively simple Allen-style baskets and the more complicated “optimal consumption”. While working class families were barely able to purchase the simple, bare bones basket, the basket

<sup>39</sup> Allen, “The High Wage Economy”, pp. 1–2.

<sup>40</sup> Jane Humphries, “The Lure of Aggregates and the Pitfalls of the Patriarchal Perspective: A Critique of the High Wage Economy Interpretation of the British Industrial Revolution”, *Economic History Review*, 66 (2013), pp. 693–714.

<sup>41</sup> Allen, “The High Wage Economy”.

<sup>42</sup> Humphries, “The Lure of Aggregates”.

<sup>43</sup> See, for example, Sarah Horrell, Jane Humphries, and Jacob Weisdorf, “Family Standards of Living over the Long Run, England 1280–1850”, *Past & Present*, 250 (2021), pp. 87–134; Stefan Houpt and Juan Carlos Rojo Cagigal, “Sustenance and Strife. Standards of Living and Family Vulnerability during Spain’s Industrialisation. The Bilbao Estuary, 1914–1935”, *Revista de Historia Económica-Journal of Iberian and Latin American Economic History*, 41 (2023), pp. 273–304; Humphries, “The Lure of Aggregates”.

<sup>44</sup> Robert C. Allen, “Absolute Poverty: When Necessity Displaces Desire”, *American Economic Review*, 107 (2017), pp. 3690–3721; Michail Moatsos, “Global Absolute Poverty. Present and Past since 1820” (Ph.D., Utrecht, 2020).

<sup>45</sup> Allen, “Absolute Poverty”.

<sup>46</sup> Carvalho *et al.*, “After da Gama”; Michail Moatsos and Pim de Zwart, “Global Real Wage Inequality in the Long Run: New Insights from Linear Programming and Accounting for Climate Differences”. SSRN Working Paper (2024).

containing some additional micronutrients remained entirely unattainable for many families, even when including the contributions of other household members. This raises the question to what extent analyses of wages relative to the bare bones basket may understate the true extent of poverty in a region. Most recently, linear programming (LP) has been used to compute conceptually comparable bare bones diets across the globe while allowing for variation in the goods included. Using LP, one defines a set of basic needs, such as calorie and nutrient requirements, along with essential heating and clothing needs. The model then selects a combination of goods that meets these needs at the lowest possible cost. Depending on local price variations, this optimal diet may primarily consist of maize, rice, or wheat,<sup>47</sup> and can vary from year to year based on shifts in relative prices. This approach offers key advantages: while diets differ worldwide and evolve over time, they remain conceptually comparable because they are anchored to a consistent set of requirements. Additionally, the model's flexibility allows for transparent adjustments to these requirements, making it easy to observe how changes affect both diet composition and cost of living. A significant challenge in applying this method to historical real wage studies is the extensive data required – specifically, consistent price data for a wide range of goods across different regions. Recent work attempts to use LP to calculate the cost of living across some seventy markets.<sup>48</sup>

Further research has highlighted that differences in heights and Body Mass Index (BMI) across the globe have influenced variations in the need for caloric intake. In a study comparing India with Europe, the basket for India contained some 2000 kcal per person compared with the 2100 kcal for Europeans as a result of the lower BMIs of the former, reducing the energy required.<sup>49</sup> Another development takes into account variations in temperatures across the globe, which affect the amount of indoor heating required. A recent study modelled the required 1000 British Thermal Units (MBTUs) based on building materials and average daily temperatures in the nineteenth and twentieth centuries.<sup>50</sup> While these are all further refinements, a crucial aspect of the methodology as it has been developed around the basic needs of people is that it enables comparisons of wage values relative to an objective poverty line across time and space.

### *Household Incomes and Gender Gaps*

A crucial issue in the analyses of real wages as an indicator of living standards concerns the extent of the contribution of different individuals to the household income. The research discussed in an earlier section, “Trends in Global Real Wages”, has been widely criticized for its narrow focus on (generally urban and unskilled) male wages. While some of these studies assume that such male wages are indicative for general trends and levels in living standards in a locality, other scholars have argued that not including earnings from other family members results in a distorted

<sup>47</sup> Allen, “Absolute Poverty”.

<sup>48</sup> Moatsos and De Zwart, “Global Real Wage Inequality”.

<sup>49</sup> De Zwart and Lucassen, “Poverty or Prosperity in Northern India?”.

<sup>50</sup> Moatsos and De Zwart, “Global Real Wage Inequality”.

picture of long-run living standards.<sup>51</sup> Women's and children's wages may have been a significant share of household income, so any living standard estimate based on male earnings alone would be a substantial understatement of the standard of living. These issues are compounded by the fact that, during different stages of the lifecycle, incomes and costs of households differ.<sup>52</sup> Additionally, trends in male and female earnings may differ over time, so that a long-run analysis of trends in well-being on the basis of men's earnings may be misleading.<sup>53</sup> For international comparisons, moreover, variations in the level of female labour market participation and differences in the gender wage gap add complexity and influence our view of the gap in living standards across the globe. If Chinese women earned good incomes *and* were more active on the labour market, this may have reduced the observed divergence.<sup>54</sup>

In this Special Issue, Carvalhal and Lucassen investigate the extent of the gender wage gap, that is, the women's wage as a percentage of the male wage, in India between the sixteenth and early nineteenth centuries. Their evidence, relating to Western India in the sixteenth century and Bengal in the eighteenth and early nineteenth centuries shows important fluctuations. It suggests that, in most periods, women earned roughly fifty per cent of male wages for the same type of work. Quite often, however, these ratios improved or shifted. In Western India, the gap declined to almost seventy per cent towards the end of the sixteenth century, while in Bengal it fluctuated to levels of up to eighty per cent of male wages in the early eighteenth and early nineteenth centuries. Remarkably, therefore, gender gaps were in fact smaller or of similar magnitude when compared with Europe in this period.<sup>55</sup>

In their contribution, Van Nederveen Meerkerk and Dixit explore labour and its remuneration in the Bombay textile mills in the late colonial era. Their detailed analyses of selected branches within the textile industry provide crucial information on the position of women on the labour market. Their evidence on wages of men and women in the textile industry in the 1920s and 1930s in the same occupations suggests the gap was even smaller than the Indian gender wage gap for the early nineteenth century, as shown in the contribution: among *siders*/piecers, women earned on average ninety-two per cent of male wages.<sup>56</sup> The article by Marco-Gracia and Delgado highlights that, also in Europe in the 1920s (which we often associate with the male breadwinner), in this case, Zaragoza, Spain, the

<sup>51</sup>E.g., Horrell *et al.*, "Family Standards of Living over the Long Run", and Sarah Horrell, Jane Humphries, and Jacob Weisdorf, "Beyond the Male Breadwinner: Life-Cycle Living Standards of Intact and Disrupted English Working Families, 1260–1850", *Economic History Review*, 75 (2022), pp. 530–560.

<sup>52</sup>Corinne Boter, "Living Standards and the Life Cycle: Reconstructing Household Income and Consumption in the Early Twentieth-Century Netherlands", *Economic History Review*, 73 (2020), pp. 1050–1073.

<sup>53</sup>For long-run analyses of gender wage gap, see Jan Humphries and Jacob Weisdorf, "The Wages of Women in England, 1260–1850", *Journal of Economic History*, 75 (2015), pp. 405–427; Alexandra de Pleijt and Jan Luiten van Zanden, "Two Worlds of Female Labour: Gender Wage Inequality in Western Europe, 1400–1800", *The Economic History Review*, 74 (2021), pp. 611–638.

<sup>54</sup>See, on this, Pomeranz, *The Great Divergence*; De Zwart and Lucassen, "Poverty or Prosperity in Northern India?".

<sup>55</sup>De Pleijt and Van Zanden, "Two Worlds of Female Labour".

<sup>56</sup>Among reelers this was seventy-five per cent, but the number of observations is very low, as the bulk of men and women earned piece rates.

contribution of women and children to the household income was crucial for families to meet basic consumption needs. More specifically, they find that while the male household head indeed contributed most of the household income (forty per cent), women contributed twenty-five per cent and the sons some thirty per cent. Contributions by daughters and other family members were negligible.

For their article, Links and Green found significant disparities between Khoe men and women wages in the early nineteenth-century Cape Colony. As often in premodern India, Khoe women earned typically about half a man's wage. Yet, they also found there were significant variations: in 1803, the gap was negligible, while in 1810, women earned only about thirty per cent of men's wages. These income discrepancies were partly driven by the fact that men and women performed different types of work; with Khoe women likely doing housework or childcare, while men were engaged in herding and other agricultural work.

Echoing recent scholarship regarding paid and unpaid work,<sup>57</sup> Carvalho and Lucassen explore a set of precolonial Indian budgets to assess the nature of consumption and income within the household in around 1800. Not only do they demonstrate how important the contribution of women's and children's earnings was in the relatively small working class households, but also that we may have to reconsider the supposed universality of human needs. This is not to deny the biological fact that humans need food to survive, but their research suggests that there is more to the barebones needs of even the poorest of the poor than just food. Almost equally essential seems to be the value of respect (via ornamentation of the body) and of spiritual pleasure and meaning, and concomitant spending. As value systems vary worldwide this awareness may have consequences for global welfare comparisons through time. Van Nederveen Meerkerk and Dixit's analyses suggest that, over time, the number of female workers declined within the total textile workforce, and that they were being increasingly pushed into low-paying tasks. Such developments would have had consequences on household income, with fewer female members contributing with a wage and/or therefore having to resort to other forms of activity.

As this section has argued, real wage levels are only part of the story in understanding relative welfare levels. The ideal analysis would include solid evidence of the total earning capacity and performance of the household consuming unit. This is the sum of the producing and consuming behaviour of its individual members and the internal power relations that govern it. Only such an approach will enable us to determine any household's place in society at large; or, in economic terms, to determine its contribution to national income, the average national income per capita, or welfare in general.

### **Labour Markets**

The functioning of labour markets crucially influences the levels of wages and wage inequalities throughout a region. In many historical labour markets, systems of

<sup>57</sup>See, for instance, Joyce Burnette, "How Not to Measure the Standard of Living: Male Wages, Non-Market Production and Household Income in Nineteenth-Century Europe", *Economic History Review*, 78 (2024), pp. 87–112.

coercion, such as slavery and *corvée* labour, played a significant role and disrupted the functioning neo-classical supply-and-demand mechanisms. It has been shown, for instance, that, in regions of Latin America, where coercion was a central aspect of the labour market, such as in the mining area of Potosí, there was considerable wage inequality between free and coerced workers, with the former earning two to three times more than the latter.<sup>58</sup> In seventeenth- and eighteenth-century Java, where *corvée* labour was prevalent in most rural areas, earnings of rural workers were about half those of “free” wage labourers in the cities.<sup>59</sup> As the Javanese and Potosí cases demonstrate, the co-existence of higher paid free and lower paid unfree labour does not necessarily induce depressing effects on the remuneration levels in the free section of the labour market. This is an important assertion: it all depends on the nature of the split labour market concerned, whether it is segmented according to race, caste, or otherwise. We know that even the market for labour in places we think of as “free”, such as England and early post-Revolutionary Northern America, were subject to master-and-servant laws and other legislation that made it difficult for those without property to withhold labour, in different ways in different sectors of the market.<sup>60</sup>

Furthermore, labour intermediaries may or may not facilitate labour mobility. The primary decision-maker on this is usually seen as the state with its rules for international and internal migration and its labour legislation, and also in its function as employer itself. Think of the army, the navy, the civil service, and several state enterprises. In colonial settings, such as India, the state (including the East India Company in India from about 1800) enforced lower wages than the market, with a depressing effect on the labour market as a whole.<sup>61</sup>

Moritz Kaiser’s contribution highlights the role of employer market power in influencing wage formation. Employer market power increased in the first decades of British industrialization, and this had a negative effect on wages for female servants. Kaiser stresses that, aside from London, localized labour markets were not competitive. The pressure placed on female servants to maintain cordial relations with employers also fostered the loss of bargaining power of the former. Given the large heft of the service labour in the labour market, he calls for a re-examination of wage formation within the segment, this having wider consequences for the eighteenth- and nineteenth-century British economy. The case of the early twentieth-century Indian textile industry, as discussed by Van Norderveen Meerkerk and Dixit, shows that switching from time to piece wages was part of the business

<sup>58</sup>Rossana Barragán and Paula C. Zagalsky, “Introduction. The Age of Silver”, in Rossana R. Barragán and Paula C. Zagalsky (eds), *Potosí in the Global Silver Age (16th–19th Centuries)* (Leiden/Boston, 2023), pp. 1–48.

<sup>59</sup>Pim de Zwart and Jan Luiten van Zanden, “Labor, Wages, and Living Standards in Java, 1680–1914”, *European Review of Economic History*, 19 (2015), pp. 215–234.

<sup>60</sup>Robert J. Steinfeld, *The Invention of Free Labor: The Employment Relation in English and American Law and Culture, 1350–1870* (Chapel Hill, NC, 1991); Douglas Hay and Paul Craven, “Introduction”, in Hay and Craven (eds), *Masters, Servants, and Magistrates in Britain and the Empire, 1562–1955* (Chapel Hill, NC, 2004), pp. 1–58.

<sup>61</sup>Titus Chakraborty, *Empire of Labor: How the East India Company Colonized Hired Work* (Berkeley, CA, 2025).



strategy of mill owners. Having to deal with increasingly volatile market conditions, they needed a large and very flexible labour supply. Apparently, in this case, employer power was such that they managed to reshape labour organization without losing workers.

Another issue with real wages studies pertains to the representativeness of urban wage labourers (often in construction) for wage earners more broadly, or even for the lower strata of population at large.<sup>62</sup> Most historical societies were predominantly rural, with urban wage labourers forming only a specific and often relatively small, well paid, entrepreneurial group in those societies. Rural incomes could therefore be considered more representative for average incomes in such economies, yet rural work is rarely done solely by wage earners. It has been suggested for China and Southeast Asia, for example, that trends in urban wages tell us comparatively little about overall living standards.<sup>63</sup> Peasants and rural wage labourers had to combine several sources of income. While neo-classical economic theory would imply that the difference between rural and urban incomes cannot be too large, because differentials would induce a shift of workers from one group to the other until pay rates have equalized, most labour markets may not have worked so efficiently. Previous research has shown significant variations between incomes of peasants and wage labourers in the short- and medium-term in early twentieth-century Uganda.<sup>64</sup> Yet, there is also evidence that observes similar long-run trends in urban and rural wages.<sup>65</sup>

In this Special Issue, Blondé and Geens show that wage trends for building labourers in the southern Low Countries might not be a good proxy of living standards of the population at large. They compare trends in real wages of building labourers with the position of these wages in the income distribution using fiscal records. Their exercise shows that rises and declines in builder's real wages were also – to some extent – associated with rises and declines of their fiscal positions. This suggests that, rather than interpreting rises in such construction labourers' wages as an indication of overall rising living standards, it only reflected the rising living standards of this particular group, possibly to do with manufacturing cycles. Therefore, it is important to look at a broader group of wage earners if we want to understand rural or urban real wages.

In sum, labour markets do function in most parts of the world in the period studied here, covering roughly the period between the late Middle Ages and World War II, at least for some segments of the labour market. But they do not work smoothly. All

<sup>62</sup>Allen, "The Great Divergence in European Wages", and Allen *et al.*, "Wages, Prices, and Living Standards in China".

<sup>63</sup>A. Booth, "Measuring Living Standards in Different Colonial Systems: Some Evidence from South-East Asia", *Modern Asian Studies*, 46 (2012), pp. 1145–1181; K. Deng and P.K. O'Brien, "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", *Economic History Review*, 69 (2016), pp. 1057–1082.

<sup>64</sup>Michiel de Haas, "Measuring Rural Welfare in Colonial Africa: Did Uganda's Smallholders Thrive?", *Economic History Review*, 70 (2017), pp. 605–631.

<sup>65</sup>Gregory Clark, "The Long March of History: Farm Wages, Population, and Economic Growth, England 1209–1869", *Economic History Review*, 60 (2007), pp. 97–135; De Zwart and Van Zanden, "Labour, Wages and Living Standards".

depends on market institutions, in particular the prevalence or otherwise of freedom to work for wages wherever one wishes (i.e. the right to change jobs and to migrate, and all sorts of combinations between the two). Moreover, the system within which a wage is earned is crucial. Just to give one example: before the abolition of serfdom in Russia, strict serfdom for most country dwellers coincided with the possibility for others to perform migratory wage work at fixed rates in cities and elsewhere.<sup>66</sup> Furthermore, the degree of integration of labour markets varies widely across time and space. All of this highlights the importance of the context from which reported wages were collected.<sup>67</sup>

### *Working Time and the Availability of Work*

Recorded wages always raise the question for how long they were paid: just for one day, week, month, or season? In other words, what do they say about the earning capacity of the worker concerned over a longer period of time? Working time varies greatly according to the seasons, which, in turn, vary across space. The longer the distance to the equator, the greater the difference between working days during winter and summer. But apart from short working days in the cold and long working days in the warm season, work opportunities are also determined by prevailing winds, best known for their effects on the monsoon. The effects on summer and winter wages are well known and also the concomitant variation of the availability of work in agriculture and other weather-dependent sectors, such as transport, construction, brick making, and bleaching, enhancing temporal seasonal migration.<sup>68</sup> In early-modern Europe, the number of official working days increased from an average 270 in the high Middle Ages to some 300 in around 1800. Apart from this, as we have seen, labour intensity had grown as well in the countryside, not only in Europe but also in East Asia.<sup>69</sup>

As long as labour history concentrated mainly on Western Europe, such variations had no great impact on international, let alone interregional, comparisons. The globalization of labour history, however, complicates comparisons, forcing researchers to answer questions regarding how many hours and days certain types of work could be performed, impacting on total earnings per day, week, month, or year. The temporal variations in the availability of work forced people to combine activities over time in so-called work cycles encompassing farm work at home (on the own peasant farm and as wage work for big farmers), domestic industry, and temporal migrant labour. The allocation of activities to the members of the

<sup>66</sup>Lucassen, *The Story of Work*, pp. 281–289.

<sup>67</sup>Leticia Arroyo Abad and Kathryn Gary, “A Window to the Past: Living Standards in Historical Perspective”, in Claude Diebolt and Michael Hauptert (eds), *Handbook of Cliometrics* (Cham, 2024), pp. 925–949.

<sup>68</sup>Jan Lucassen, *Migrant Labour in Europe 1600–1900: The Drift to the North Sea* (London, 1987). Also extensive on the concept of the annual work cycle of especially rural households.

<sup>69</sup>Peer Vries and Annelieke Vries-Baaijens, *Atlas of Material Life: Northwestern Europe and East Asia, 15th to 19th centuries* (Leiden, 2020), pp. 216–217; for the high number of working days and working hours in Japan, c. 1870–1940, see Peer Vries, *An East Asian Route of Industrialization? The Case of Japan 1868–1937* (Leiden, 2022), pp. 121–134.

household was done according to age and gender. This led to regionally very specific earning patterns, including temporal migration.<sup>70</sup>

Clearly, much more detailed knowledge of working time is important for several reasons. First, because we want to know the relation between effort and remuneration, and in the end the fairness of remuneration. Second, if we know the number of hours spent in working for wages, we know how much time is left for other income-generating activities, such as working one's own garden plot or other self-employed activities. This applies to free and unfree labour.

In her contribution to this Special Issue, Kathryn Gary shows that workers in early modern Sweden did not work (for wages) for 250 days per year (as assumed by most real wage studies). Instead, she finds that, in this northern country, the typical work year was likely no longer than 150 days, because work in all major sectors of the pre-industrial economy was highly seasonal. Most work in construction was done between May and September, while work in agriculture and harbours was similarly concentrated during the summer months. This meant that while there was an abundance of work during one part of the year, there was hardly any work available during other parts. For other parts of the world, and for other sectors, we have seen alternative employment was available (work cycles encompassing farm work at home, domestic industry, and temporal migrant labour). Among other consequences, such conclusions imply a reassessment of how forms of obtaining income vary throughout the year, and to what extent living standards are impacted by those variations.

In a different fashion, Ben Schneider contributes to this topic by examining the number of hours that factory employees worked in early United States. While this number would be between twelve and sixteen hours per day, six days a week, there were some yearly variations. December and January saw workdays of little more than eleven hours, while April working time surpassed thirteen hours. These long working days were associated with both short- and long-term health hazards, as accordingly disease risk increased substantially.

### *In-Kind Payments*

While in most modern labour markets monetary remuneration is key, historically we encounter large variations in the proportion of payment in cash and in kind. One extreme is the exclusive remuneration in kind for most unfree labourers, either by providing them just a maintenance or the opportunity for plantation slaves to work their own garden plots.

Where work is performed in the home of the employer, in-kind remuneration is generally much more important than the cash component. This is clear for live-in servants, but it also applies to soldiers and shipmates.<sup>71</sup> Much less known is the food component for other workers, as demonstrated for India from the

<sup>70</sup>Lucassen, *Migrant Labour in Europe*; "Working at the Ichapur Gunpowder Factory in the 1790s", *Indian Historical Review*, 39 (2012), pp. 45–82, 251–271; Gijs Kessler and Jan Lucassen, "Labour Relations, Efficiency and the Great Divergence: Comparing Pre-Industrial Brick-Making across Eurasia, 1500–2000", in Prak and Van Zanden (eds), *Technology, Skills, and the Pre-Modern Economy*, pp. 259–322.

<sup>71</sup>Such in-living arrangements, although restricting autonomy, can be sought after, especially by youngsters, saving for a married existence: see, e.g., Corinne Boter, "Marriages are Made in Kitchens: The

sixteenth century onwards.<sup>72</sup> It is possible that, as until recently in the Indian case, this type of remuneration has been underestimated by labour historians at large. Two strategies are open to workers who have to take care of their own food and lodgings: first, growing their own food (in general vegetables and potatoes; grain, as a rule, has to be purchased); and second, trying to switch to work paid in kind during expensive periods and to cash wages in times of low commodity prices. Obviously, employers will attempt to act contrarily.

In her article, Carmen Sarasua illustrates that in-kind payments were sometimes the total remuneration of workers in early nineteenth-century wartime Madrid. She shows that, in these extraordinary circumstances, a vast set of workers preferred to ensure lodging and food rather than wage payments. In other cases, in-kind payments consisted of one part of total remuneration. Depending on the sector, these could vary from forty to 100 per cent of the total wage package in eighteenth-century Spain. Sarasua shows that high shares must be seen as an outcome of a negotiation among employers and workers.

Yet, negotiation among two parties was not always possible. Schneider shows that, despite internationally comparative high wages, in the industrial context of the early United States, employees developed a set of strategies to bind workers to the factory. These included delaying wage payments and occasionally paying in credit that could only be used in the company store.<sup>73</sup> Other than supervisors, and depending on the employer, workers did not enjoy high job security.

### Outlines of a New Perspective on Wage and Income

The globalization of the field of real wage studies has added enormously to our knowledge about comparative real wage levels across time and space. As a result, we can now compare long-term trends of male (mostly urban), time-based day wages during several centuries for most parts of Western Europe and for a number of regions in Asia, as well as shorter trends, say from about 1900, for most parts of the world. These data have shown during which periods real wages diverged and converged over time in different parts of the world, and the effects of these changes on development more generally. Although much more still has to be done, this achievement should not be understated.

Leaving aside environmental consequences, and despite initial suffering and immiseration in many sectors, the welfare gains of the Industrial Revolution are undisputed. Research has not given solid ground to the idea that these can be attributed to inherent differences between two homogeneous but completely different parts of the world since 1500: “the West and the Rest” – first, because of important differences within Europe and Asia (and, consequently, diminishing contrasts); and second, because of strong fluctuations over time in welfare levels in most parts of the

European Marriage Pattern and Life-Cycle Servanthood in Eighteenth-Century Amsterdam”, *Feminist Economics*, 23 (2016), pp. 68–92.

<sup>72</sup>Carvalho et al., “After da Gama”.

<sup>73</sup>See also Karin Lurvink, “Strapped for Cash. Non-cash Payments on Louisiana Cotton Plantations, 1865–1908”, *The Low Countries Journal of Social and Economic History*, 11 (2014), pp. 123–151.

world. This questions simplistic, fundamentally “cultural” distinctions between these two parts, which are too easily invoked by way of ultimate explanations. But how can we meaningfully construct an alternative view? That may not be as easy as some proponents of a late Great Divergence (either stressing factor endowments, cultural difference, or power relations) have been thinking.

Economic historians will always call for more data, and, in this field, most urgently from outside Europe. A number of contributions to this Special Issue, for example, have demonstrated how important the contribution of female members of the household is, and that their unit of work account and wage formation may be different. Here, labour history and gender history go hand in hand. But our awareness has grown that understanding the plethora of new data is becoming increasingly difficult. Not unexpectedly, this has to do with the necessity to be able to calibrate and identify the comparative components and aspects of any recorded wage, something our tools are not fully equipped for yet. The most important aspects are, as mentioned, the contribution of all members (not just adult males) of the household, at different times of the year; the function of the household as a unit of income pooling; the unit of account of waged work and their wage formation – the way their wages were paid out (in cash, in kind, by way of advances, individually or groupwise, according to time or piece rates). Without these components, at the very least, any question of whether there was equity or why inequality developed cannot be determined.

A much more important reason for caution, however, is that our point of departure – wage labour as performed in the twentieth century in the richest part of the world, dominated by comparatively smoothly functioning free labour markets, the individual labour contract, and paid labour for mainly adult males – is, in many ways, atypical. It means that we have to rethink analytically the relation between wage levels and national income, between wage levels and household income, and between work performed by the individual members of the household, between employers and workers. Labour economics as developed for industrial parts of the modern world is simply inadequate for a long-term global analysis of inequalities or labour work done in a system of inequity. Of course, we must even question whether, ultimately, factoring in all possible aspects of household income and expenditure in all detailed historical contexts (who earned what, for how many hours, days, in which seasons, how this was paid, and how this differed over time and from one region to the next), as described in several contributions of this Special Issue, will provide the answers.

For now, economic and social historians are a long way from reaching the end. The awareness of the manifold aspects of wage earnings as such, on the one hand, and their relation to other forms of income and wealth in the wider society on the other, leads to our plea for a two-pronged approach: first, the continued and multifaceted study of all possible sources of income of all working people; and second, of the norms, solidified in institutions, and systems that determine the opportunities for individuals to acquire an income, whether based on perceptions of gender, class, caste, ethnicity, or religion.