



THE LONDON SCHOOL
OF ECONOMICS AND
POLITICAL SCIENCE ■

Economic History Working Papers

No: 213/2015

Locating a Chronology for the Great
Divergence: A Critical Survey of Published
Data Deployed for the Measurement of
Nominal Wages for Ming and Qing China

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authors

Patrick O'Brien
London School of Economics

Kent Deng
London School of Economics

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DEPARTMENT OF ECONOMIC HISTORY

WORKING PAPERS

NO. 213- JANUARY 2015

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Patrick O'Brien

London School of Economics

Email if required

Kent Deng

London School of Economics

Abstract

Since the publication of Kenneth Pomeranz's seminal book *The Great Divergence*, the landscape of world and global history has changed dramatically. For the first time, living standards, instead of labour, land and capital productivities, have become the prime concern among historians in various parts of the world. The key to this decade-long debate hinges on quantity and quality of information for transnational and cross-regional comparisons. But due to the obvious constraints we historians constantly face, genuinely good data are frustratingly hard to obtain and thus set the upper limits for what we can possibly achieve. The task of the present study is to put some currently circulated nominal wages for the Ming-Qing Period (1368-1911) under the microscope to check their feasibility. Our main findings from Chinese sources suggest that published cash wages did not reflect the actual living wages needed in reality to support a worker and his family of the average size. This means that we may have been barking at the wrong tree.

Keywords: Great Divergence, Ming-Qing China, Wages

JEL Codes: N15, N35, O11, O53, P44

In recent decades economic historians have resituated the scientific, technological and economic achievements of Western societies in a global context. Their classical predecessors, particularly Max Weber, Karl Marx and Adam Smith, left them with approaches, a vocabulary and several suggestive hypotheses that have been taken forward, modified and also rejected by two generations of post-war research, exploring models and narratives that purport to explain the rise of the West.¹ There are now libraries of books and articles dealing with Asian agricultures, industries, towns, commercial networks, communications, trade, science, technologies, cultures, business organization, taxation, state systems, government policies etc., etc., covering the last millennium.² Some are by academics from universities, not long emancipated from colonial rule.³ Most of this impressive, but still far from comprehensive, volume of research in history and the social sciences has been written largely by specialists in area studies from North American, European, Australian and Japanese universities. Not long after the second world war and during the era of decolonization scholars were offered an opportunity provided by the accumulation of an extensive body of knowledge – long available about Europe and North America, but emerging on Asia, the Middle East, Africa and Latin America – to reposition their hitherto disconnected analyses of wealth and poverty, one against the other, in order to construct global economic histories that might have satisfied the aspirations of Montesquieu, Voltaire, Smith and their ‘enlightened’ followers and pleased Max Weber and Karl Marx.⁴

Published interpretations of this accumulating body of monographs in area studies has led to ideologically driven debates between Eurocentric, Sinocentric and Indocentric historians concerned either to reassert or to undermine all canonical narratives about the rise of the West. Perhaps the Divergence Debate will fade away if and when surveys appear

¹ Vries, *Escaping Poverty, The Origins of Modern Economic Growth*; Morris, *The Measure of Civilization*, contain awesome bibliographies.

² Manning, *Navigating World History*.

³ Bagchi, *Perilous Passage*; Falola and Brownwell, *Africa, Empire and Globalization*.

⁴ Sogner, *Making Sense of Global History*; Mazlish and Bultjens, *Conceptualizing Global History*.

from Chinese, Indian, Japanese, African, Arab, Latin American and other scholars of world history from universities outside the West.⁵ Meanwhile, a virtually unmanageable volume of modern research has at least severely qualified traditional and simplistic Weberian, Smithian and Marxist perceptions that only Europe and its settlements overseas had ever developed institutions and beliefs approximating to the political, legal, cultural and religious conditions required for the formation of markets, and a process of Smithian growth centuries before other continents.⁶ As Marshall Hodgson observed decades ago: 'All attempts to invoke pre-modern seminal traits in the occident can be shown to fail under close historical analysis'.⁷

Braudel, Chaudhuri, Goody, Frank, Wong, Marks, Pomeranz, Goldstone, Hobson, Parthasarathi and other global economic historians whose names and books are also on the recent and comprehensive bibliography constructed by Vries would agree.⁸ Jones continues to revise and reformulate some of the positions he adopted in the first edition of *The European Miracle* in 1981.⁹ From his illuminating comparisons of levels and types of development achieved by Europe and Asia in the early modern period, Fernand Braudel inferred that 'the populated regions of the world faced with demands of numbers seems to us to be quite close to each other'. But there is, he continued, 'a historiographical inequality between Europe and the rest of the world. Europe invented historians and made good use of them. Her own history is well lit and can be called as evidence or used as claim. The history of non-Europe is still being written. And until the balance of knowledge and interpretation has been resorted the historian will be reluctant to cut the Gordian knot of world history'.¹⁰

Braudel was surely wise to postpone attempts to construct explanations for the bifurcation in productivities and living standards between Europe and Asia, (discernible

⁵ Iggers and Wang, *A Global History of Modern Historiography*.

⁶ Pomeranz, 'Without Coal and Colonies?'; Acemoglu, *Why Nations Fail*.

⁷ Hodgson, *Rethinking World History*, p. 86.

⁸ Vries, *Escaping Poverty*.

⁹ Jones, *Growth Recurring*.

¹⁰ Braudel, 'Civilization and Capitalism', vol. 1, p. 134.

sometime before 1800, transparent by 1900 and stark in our own times), if only because the research required to measure and date economic outcomes for divergence across advanced and backward regions of Eurasia for, say, the five centuries before the latter half of the nineteenth century remains at a preliminary stage and might alas turn out to be impossible to achieve?¹¹

Meanwhile, samples of relevant, but partial, data which refer to levels of urbanization, balances of commodity trade, life expectancies, heights and calorific consumption levels for specific locations (usually large towns) in East, South and South East Asia as well as the Ottoman Empire, qualify traditional views that average standards of living afforded by the economies of Western Europe for majorities of their populations were discernibly superior before the age of revolutions (1756-1815).¹² Clearly the deployment of quantitative evidence for purposes of transcontinental comparisons is both necessary and complex because throughout the centuries before that period Asia (including West Asia) contained larger, but difficult to measure, shares of Eurasia's cultivable land, resources, income, workforces and populations.¹³ Unfortunately almost all the data collected and potentially available on most aspects of the economies ruled by the imperial regimes of early modern Asia remains sparse, insecure and difficult to interpret.

For Europe a voluminous literature in comparative economic history designed to explore the origins of relative levels of productivity achieved by nations, regions, towns and villages of that continent depends upon a framework of analysis and statistical indicators derived from economics which helps historians to specify and to estimate how average incomes, real wages and labour productivities have evolved through time. For Britain, Holland, Iberia, Sweden and France several indicators go back (as political arithmetic) to the late

¹¹ Deng and O'Brien, 'Clarifying Data for Reciprocal Comparisons of Nutritional Standards of Living in England and the Yangtze Delta (Jiangnan), c.1644 – c.1840'.

¹² Allen, *Living Standards in the Past*, Baten, 'Evaluation of Living Standards and Human Capital in China in the 18-20th century'.

¹³ Maddison, *World Economy*; Frank, *Re-Orient*.

seventeenth century.¹⁴ Official statistical investigations to track the growth and fluctuations of a wider range of non-Western economies, and for the world economy as a whole, first came on stream during the Great Depression.¹⁵ A sustained institutional commitment to economic measurement on a global scale has, however, only matured under the auspices of the United Nations and its subsidiary organizations (particularly the OECD and the World Bank) over the last fifty years.¹⁶ That programme has stimulated a group of assiduous statisticians to try to extend backwards through time the impressive base of data available for recent years to compare and to track long-run developments in the wealth and poverty of all nations. Most of them (recognizing the pioneering work of Simon Kuznets as a 'paradigm' for their work) have endeavoured to make serious contributions to a body of salient economic facts and placed some more or less plausible estimates at our disposal.¹⁷ Statistically based exercises, concerned to measure GDP per capita, real wages, consumption standards, heights, health and mortality as well as the productivities of land and labour for samples of populations and workforces located in particular regions of India, China, Japan and South East Asia are beginning to widen the database at the disposal of social scientists who wish to conduct systematic and quantified comparisons into the standards of living offered by Asian as well as European economies to their populations over pre-modern centuries before the Industrial Revolution.¹⁸

Nevertheless, as it stands, the base of reliable economic data is pretty well truncated in its chronological coverage to the twentieth century. Even that limited statistical evidence has allowed far more scope for comparative analysis of development among currently affluent European, North American and Australasian societies than it does for long-run historical comparisons across Europe, Africa, Asia and the Americas. Although Japan is now in the

¹⁴ Broadberry and O'Rourke, *The Cambridge Economic History of Modern Europe*, Vol. 1.

¹⁵ Bairoch, *Economic Development of the Third World since 1900*.

¹⁶ Maddison, *World Economy*.

¹⁷ Amsden, *The Rise of the Rest*; Fogel, *Political Arithmetic and the Empirical Tradition in Economics*.

¹⁸ Federico, *Feeding the World*; Barbier, *Scarcity and Frontiers*.

frame and the situation is improving, a paucity of data continues to handicap academics who lack any clear sense of when divergences both in productivities and related standards of living between European and Asian economies clearly emerged.¹⁹ Yet, most believe (correctly) that an accepted chronology is a precondition for the analysis of why path dependant intercontinental differences in economic efficiency and social welfare had become discernible by the eighteenth century and indisputably transparent by 1900.

Meanwhile, an early modern world of 'surprising economic resemblances' has been exposed in a book by Pomeranz.²⁰ That famous book and the debate it stimulated has called into question the unsubstantiated and unquantified assertions that the political, institutional and cultural frameworks (as well as modes of production) within which economic activities in Asia were embedded for centuries before the Industrial Revolution, differed from Europe in ways that clearly and significantly impeded the evolution and integration of commodity and factor markets, the development of financial intermediation, the spread of private property rights, the operation of mercantile networks, proto industrialization, the commercialization of agriculture and patterns of differentiated consumption.²¹

Although contrary representations (derived from canonical accounts by Smith, Marx and Weber) of European economies moving gradually, but inexorably ahead for centuries on path dependant trajectories operating only within the Western promontory of the Eurasian landmass, continue to be published, they now look less and less tenable.²² Most protagonists participating in debates on the Great Divergence recognize, however, that the base of statistical evidence available for systematic comparisons of standards of living across the economies of Eurasia remains in serious need of extension, repair and validation. Most historians, but not all economists, are convinced, however, that prospects for the

¹⁹ Williamson, *Trade and Poverty*.

²⁰ Pomeranz, *Great Divergence*.

²¹ Vide Special Issues of *Journal of Asian Studies*, 61, 2002; *Canadian Journal of Sociology*, 31, 2006; and *Historically Speaking*, September, 2011.

²² Dushesne, *Uniqueness of Western Civilization*.

construction of plausible conjectures for levels of GDP per capita for China, India and the Ottoman empire are entirely remote.²³

Led and stimulated by the pioneering research of Robert Allen and Jan Luiten Van Zanden, a research programme and bibliography of publications testifies to an expectation that this task could be most expeditiously and reliably accomplished by collecting, validating and comparing data for nominal money, wages with indices that measure the costs of foodstuffs, clothing and other basic necessities, purchased by wage dependant labourers for their families resident in Eurasian towns for 'clusters' of bench-mark years between 1600-1650, 1650-1700, 1700-1750, 1750-1800, 1800-1850.²⁴

For the West, methodological and inferential problems involved in the collection, validation, calibration and comparison of data for levels of 'real' wages per day received by labourers and craftsmen performing comparable tasks, largely in urban but also in agrarian contexts have been thoroughly discussed at theoretical and empirical levels.²⁵ For example, the bibliography for exercises comparing real wages through time and across space for waged workers employed in Europe's towns and agricultures, is extensive and entirely familiar to labour economists, as well as economic and social historians. It forms a, if not the, core statistical component of debates in national and European economic history concerned with long term and cross-country changes in standards of living afforded to their populations by Europe's regional and national economies.²⁶ Unfortunately, as we will now endeavour to show, the quantitative evidence available for labour working in Asian towns and villages is

²³ Broadberry, *Accounting for the Great Diverge*.

²⁴ Van Zanden, 'Wages and Standards of Living in Europe'; Allen, 'The Great Divergence in European Wages and Prices from the Middle Ages to the First World War'.

²⁵ Scholliers, 'Real Wages in 19th and 20th Century Europe'; Scholliers and Schwartz, *Experiencing Wages, Social and Cultural Aspects of Wage Forms in Europe since 1500*.

²⁶ Allen, 'Real Wage (Historical Trends)'.

neither comparable in scale and scope, nor anything but complex and problematical to convert into numbers that could facilitate comparisons across Eurasia.²⁷

Thus, several caveats familiar to historians who have engaged with complexities of drawing inferences from the more extensive transparent and secure data available from comparisons of real wage levels across the economies of premodern Europe should, therefore, preface the process of validating the disappointing evidence that has been published, not only for China but probably for Japan, India and the Ottoman Empire as well.²⁸

First and foremost is the fact that data on Asian daily wage rates uncovered for these centuries refers to significantly lower proportions of the workforce than was the case for Europe - particularly England and the Netherlands where transitions to dependence on wages for the incomes and expenditures of family units had proceeded further and faster than elsewhere in the West and the East.²⁹ For example, most of the ratios of wage dependant workers to the total workforce published by economic historians of the Chinese empire and republic are in the 5% range. Even for a port city, like Tianjin that ratio was only 12.4%.³⁰ According to an occupational survey for 1919 for Jiangsu Province (a highly commercialized region of the Yangtze Delta), skilled and unskilled waged workers accounted for just 5% of all occupations. Even Marxist historians participating in debates concerned with 'the sprouts of capitalism' recognized that a Chinese proletariat took a long time to emerge.³¹

²⁷ Allen, *Living Standards in the Past*.

²⁸ Bassino and Ma, 'Japanese Unskilled Wages'; Ozmuur and Pamuk, 'Real Wages and Standards of Living in the Ottoman Empire'; Allen, 'India in the Great Divergence'.

²⁹ Lucassen, 'The Rise, Organization and Institutional Framework of Factor Markets, Proletarianization in Western Europe and India'.

³⁰ Li *et al*, *Mingqing Shidaide Nongye Cibenzhuyi Mengya Wenti*, pp. 335-6.

³¹ Liu, 'Jiawu Zhanzhenghou Zhiyoude Zibenzhuyide Nongye Guyong Laodongde Fazhan'.

Runs of records uncovered (for both continents, but particularly for the East) refer to a limited range of occupations, dominated by unskilled jobs in agriculture and urban construction, supplemented by a range of more confined references to wage rates for skilled occupations – again dominated by craftsmen employed in urban building industries.

Thirdly, the framework of institutions surrounding Asian labour markets and the terms of the contracts or conventions for the employment of waged labour are very difficult to clarify, particularly for those involving wages paid by governmental authorities who often recruited labour to work on building sites and industrial workshops on terms that approximated to *corvée*. States also remunerated them with unknown and variable proportions of payments in kind (called *gongshi* 工食, which included food, clothing, shelter, etc.) supplemented by politically decreed sums of money (*gongjia* 工价), which was only a part of the ‘living wage’.³² As Peng’s data show that payments in kind for rural waged workers remained substantial.³³

Period	Payment in food	Payment in cash
1573–1619	81.6%	18.4%
1628–1644	86.5%	13.5%
1861–1874	71.0%	29.0%
1875–1908	67.5%	32.5%
Average	76.6%	23.4%

Furthermore, the same pattern characterised payments for urban workers’ payments in the Lower Yangtze during the late Qing.³⁴

³² Peng, ‘Qingdai Qianqi Jiangnan Zhizaode Yanjiu’, pp. 105, 108; also, Campbell, and Lee, ‘Free and Unfree Labor in Qing China’; Li *et al*, *Mingqing Shidaide Nongye Cibenzhuyi Mengya Wenti*, pp. 167, 230-42, 438-41, 496-9; Liu, ‘Jiawu Zhanzhenghou Zhiyoude Zibenzhuyide Nongye Guyong Laodongde Fazhan’, p. 29..

³³ Li *et al*, *Mingqing Shidaide Nongye Cibenzhuyi Mengya Wenti*, pp. 365, 366, 440, 441.

³⁴ Peng, ‘Qingdai Qianqi Jiangnan Zhizaode Yanjiu’, pp. 97, 107.

Workers' 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%

Furthermore money wage rates are often recorded formally in China, in an officially designated numeraire or unit of account (the silver tael) convertible into 'ready cash' at purchasing power parities that were subject to considerable degrees of variance from locality to locality and time to time.³⁵

Other and far more limited Asian sources for daily wage rates cited in judicial and company records that refer to employment in sectors, firms and occupations in the private sector are either under-specified or collected from the archives of foreign multinationals that paid high and seasonal wages to Chinese workers servicing ships for the weeks that they remained in port.³⁶ Often the evidence for wages refers to payments to landless unmarried males and females working with and for their own kin.

Last but not least, the procedures used to convert evidence for daily wage rates into annual family incomes depend upon guesses about the numbers of days worked per annum or per season and the supplementary income provided by wives and children.³⁷

All of these problems have seriously compromised the deployment of wage rates as proxies for labour productivities and as a statistical basis for the construction of modal family

³⁵ Kishimoto, *Shindai, Chūgoku, Nobukka to Reoizai hendō*; Theobald, *War Finance and Logistics in Late Imperial China*, p. 26.

³⁶ Van Dyke, *Canton Trade*.

³⁷ Allen, 'Agricultural Productivity and Rural Incomes and the Yangtze Delta'.

incomes received by unskilled and skilled workers across Asia.³⁸ No historian who has attempted to grapple with the meagre and ambiguous records for China, India and the Ottoman Dominions doubts that Asia's labour markets for this period cannot be analysed by resorting to the neo-classical models and assumptions that have been utilized to support chains of inferences based upon accounts recorded by institutions for the daily wage rates paid to unskilled and skilled labour in the West.³⁹

Recent and commendable attempts to collect and calibrate evidence for nominal daily wage rates recorded for Chinese workers employed by the imperial state and by private firms illustrates the complexities involved and exposes the heroic, but contestable, assumptions necessary for the construction of numbers that could potentially be compared with the more voluminous and less ambiguous data for Europe.⁴⁰

Thus we commend the stimulus that Broadberry and Gupta's pioneering attempts imparted to ongoing programmes for quantification to collect and calibrate wage data for pre-modern China and India.⁴¹ They would, however, almost certainly recognize that their figures published in 2006 for nominal daily wage rates for agricultural labourers employed in the Yangtze Delta are based upon two quotations that are not fully specified in either of the secondary sources that they cite and cannot stand as a representative for modal wage rates for unskilled Chinese manpower labouring in Jiangnan.

Their initiative has been carried forward by an extensive database of nominal wage rates collected in large part by Christine Moll-Murata. She uncovered a far larger sample of

³⁸ Booth, 'Living Standards in the Past'.

³⁹ For Spanish America, see Dobado-Gonzales and Garcia-Montero, 'Neither So Low So Short'.

⁴⁰ Allen, 'Great Divergence in European Wages and Prices from the Middle Ages to the First World War'; Allen, 'Wages, Prices and Living Standards in China, Japan and Europe'. The data for Europe is fully referenced in Deng and O'Brien, 'Clarifying Data for Reciprocal Comparisons of Nutritional Standards of Living in England and the Yangtze Delta (Jiangnan).'

⁴¹ Broadberry and Gupta, 'Early Modern Great Divergence'; Deng and O'Brien, 'Clarifying Data for Reciprocal Comparisons of Nutritional Standards of Living in England, and the Yangtze Delta (Jiangnan).'

references to nominal money wage data recorded in primary sources for China that refers mainly to skilled and unskilled workers employed by the state as well as a smaller range of observations that serves as a sample of workers employed by private firms. For reasons that are not elaborated only a selection of the official sources recording nominal wage rates were utilized by five authors of a working paper that utilized these data to construct a leading article 'Wages, Prices and Living Standards in China, 1738-1925 in Comparison with Europe, Japan and India' for a special issue of the *Economic History Review* on Asia in the Great Divergence published in 2011.⁴² Presumably government sources containing the unutilized data placed on the web were rejected by the authors of this seminal paper for several good reasons: For example, they recognized that the primary sources were undated; referred to a single prefecture; cited a common wage for a wide range of skills; displayed a wage scale for eighteen provinces in 1816 suggesting that unskilled labour was remunerated at the same wage across the empire; indicated a stable wage rate for building workers employed in the Yuanmingyuan Park between 1723-36 down to 1860; included figures for monthly wages that omitted an unknown amount of payments in kind for 'families'; exposed an inexplicable decline of around 90% in the piece rate offered to one category of skilled labour in the printing industry between 1705 and 1851-61 etc., etc.⁴³

On close examination most of Qing China's official sources consulted by Moll-Murata for the Special Issue and reviewed here by us contain data on nominal wage rates that turned out to be too difficult to validate and too complex to interpret. Yet, several of the official sources that were by default utilized by the authors also remain ambiguous. They do not, in our view, seem fit for the purpose of comparing levels of real income derived from wages across Eurasia.⁴⁴ Nevertheless, the authors opted to merge figures from the following official and private sources in order to construct a database for nominal daily wage rates and, by

⁴² Broadberry and Hindle, 'Asia in the Great Divergence'.

⁴³ See Footnote 44 below and after calibration, for estimates of annual earnings, see Allen *et al*, 'Wages, Prices and Living Standards in China 1738-1925 in comparison with Europe, Japan and India'.

⁴⁴ The complete data set compiled by Moll-Murata, 'The Wage Data in *Da Qing Huidian Shilif*'.

selection interpolation and calibration, for estimates of annual earnings for unskilled labourers employed in three major Chinese cities - Beijing, Suzhou and Canton between 1740 and 1820.⁴⁵ Primary sources for their database included:

- (a) An Imperial record for 1769 which refers to daily wage rates payable for just over 900 skilled and unskilled workers employed on 945 governmental construction sites across the Qing empire, supplemented by a smaller set of wage rates fixed by the State for employees in its armament factories in 1813;⁴⁶
- (b) 63 quotations of daily wages from the accounts of the Dutch East India Company paid to labourers to load and repair its ships docked in Canton over the eighteenth century;⁴⁷
- (c) 188 underspecified quotations culled from testimonies contained in the Qing judicial records for c. 1740-1820;⁴⁸
- (d) 6 piece rates negotiated with a guild representing semi-skilled workers converted to daily rates for cotton manufacturing in Suzhou for 1693, 1701, 1715, 1730, 1772 and 1795;⁴⁹
- (e) Daily money wages paid to unskilled labour employed by just one fuel store outside Beijing for the years 1807-20 extended for the ongoing period of accelerated divergence 1820-1914.⁵⁰

Although this foray into Chinese wage data is an entirely welcome contribution to the meagre base of statistical evidence available for the economic history of Qing China, for

⁴⁵ Allen *et al*, 'Wages, Prices and Living Standards'.

⁴⁶ <http://www.uni-tuebingen.de/uni/ans/project/shp/zeli.zonglue.htm>.

⁴⁷ Van Dyke, *Canton Trade*.

⁴⁸ Broadberry and Hindle, 'Asia in the Great Divergence', p. 14.

⁴⁹ *Ibid.*, pp. 10 and 34.

⁵⁰ *Ibid.*, pp. 34-5.

purposes of locating a chronology for the divergence debate we find it necessary to clarify the nature and to assess the quality of the meagre and imperfect sources for nominal wage rates the authors uncovered for the period that preceded divergence with the West.

To that end the most geographically extensive and data-rich primary sources utilized by the authors and placed on web sites (cited in footnotes 12 and 21 of their article) are Qing records listing figures for 'government regulated' money wages for workers employed on public construction sites in 1769 as well as 1723, 1736 and the smaller sample for employees in military factories in 1813. Records were located for 15 provinces and 945 districts (prefectures/counties) of China. The nominal wage data presented in Table 1 of the article has been calibrated from over 2000 figures for wage rates for master artisans (translated into skilled labour) and labourers (translated into unskilled labour).

As published the calculations refer to mean nominal wage rates payable within the boundaries of districts. District-wide averages were then converted to means for the number of districts contained in 21 provinces or regions of China. Thus the raw data has been transformed into 'representative' daily wage rates for 21 regions/provinces that in 1776 included 73% of the empire's population. As constructed the regional averages were not, however, weighted by a region's share of China's total population which varied from 1 million for Manchuria to around 30 million for Jiangsu province in the Yangtze Delta.⁵¹

Furthermore, variance around the means calibrated for districts, prefectures and provinces (18 of them) is not indicated. Although a scrutiny of the raw data on web sites cited in footnotes will reveal that intra-regional and cross-regional differentials for wage rates for the same occupations could be significant and very wide apart.⁵² We suggest that the meaning and provenance of these regional and imperial averages set out in Table 1 is insecure. Furthermore, and as calculated, the wage rates for unskilled labour in that table 'look' closer to 0.04 taels of silver per day than the higher figures of 0.09 to 0.10 taels

⁵¹ *Ibid.*, pp.11-13.

⁵² *Ibid.*, p.14, fns 20 and 21.

favoured by the authors when they settled upon, simply selected and interpreted as outer bound estimates for daily wages paid to labourers employed in Beijing, Suzhou and Canton.⁵³

Over the decade 1765-74 a daily wage rate of 0.04 taels of silver would purchase 1.9 kg of second grade white rice at a seasonally low autumn price in the Yangtze Delta.⁵⁴ That quantity of edible grain translates into 1710 kilocalories of nutrients per capita for a family of four persons and 1368 kilocalories for a family of five. Both levels fall below the 2100 kilocalories proscribed by the FAO for food security.⁵⁵ In short, China's primary sources recording recommended daily wage rates for unskilled labour employed by the Qing state almost certainly record 'norms' for monetary payments that were, in all probability, net of the food, shelter, clothing and other wage payments in kind that were managed and supplied by departments other than the Ministry of Revenue which was responsible for transfers as monetary salaries and wages to bureaucrats and soldiers as well as workers employed by the Qing state.⁵⁶ Our reading of the primary sources derives plausibility from the stability and constancy of the wage norms across space and time published in the official sources consulted by the authors.⁵⁷ *Prima facie*, the Chinese state preferred to deal with problems arising from rising and fluctuating prices for food and other necessities required by and for its own employees by purchasing and supplying them with food and other wage goods (*gongshi* 工食).⁵⁸ There seems to be no reason to accept the authors' claim that the evidence that

⁵³ *Ibid.*, Table 1.

⁵⁴ Yu, *Zhongguo Jiage Shi*, pp. 900, 904; Huang, *Zhongguo Lidai Wujia Wenti Kaoshu*, pp. 330–9.

⁵⁵ F.A.O. 2002, 'Food Energy – Methods of Analysis and Conversion Factors'.

⁵⁶ Peng, *Zhongguo Jindai Shouongyeshi Ziliao*, pp. 396–413, Peng, 'Qingdai Qianqi Jiangnan Zhizaode Yanjiu', pp. 97, 101, 107, Zhao *et al*, *Zhongguo Junshi Shi*, vol. 3, p. 459; He and Wei, *Huangchao Jingshi Wenbian*, p. 868.

⁵⁷ Broadberry and Hindle, 'Asia in the Great Divergence', pp.11-14.

⁵⁸ Li *et al*, *Mingqing Shidaide Nongye Cibenzhuyi Mengya Wenti*.

they uncovered for wage norms were 'nearer to the market than any previous regulations by the central government'.⁵⁹

Laudably they endeavoured to ascertain 'how accurately' wages 'recommended' by the imperial state approximated to wages offered by the private sector of the economy 'by juxtaposing them' against a broader dataset of 264 scattered wage quotations from many private sources from different parts of China. Nevertheless, a scrutiny of this evidence does not inspire confidence that such different types of wage data could be 'pooled' to form a secure database for purposes for comparisons with the evidence for market –determined wages for Western Europe negotiated in contexts that approximated to proto-labour markets.⁶⁰

Indeed and with candour and transparency, the authors admit that the entire set of wage data they have assiduously collected and which refer to both the public and private sectors of the Chinese economy may not be fit for that purpose? As they observe the data displays a 'general lack of comparability due to the multiplicity of labour contracts, payment systems and currency units. Employment contracts could last for a day, a month or a year and careful attention must be given to the number of days worked in a month or year to reduce the payment information to a consistent daily rate. There are many cases for which food allowances were mandatorily given in addition to cash payments. Possibly the most difficult issue of all is the quotation of wages in different currency units (copper coins, silver taels) with exchange values that were both highly localized and fluctuating over time'. They concluded 'studies not taking full cognizance of these problems can be very misleading'.⁶¹

An older generation of economic historians who also encountered and debated this particular and 'most difficult of all issues' in their endeavours to convert more abundant and transparent evidence for Europe's urban wage rates into a common numeraire such as grams of gold or silver might well conclude that the complexities embodied in the pre-

⁵⁹ Broadberry and Hindle, 'Asia in the Great Divergence', p.11, fn 12.

⁶⁰ Van der Linden and Lucassen, 'Prolegomena for a Global Labour History'.

⁶¹ Broadberry and Hindle, 'Asia in the Great Divergence', p. 13.

modern Chinese monetary system could well be insurmountable.⁶² The presence of this barrier to quantification has been attributed by monetary historians of China to the persistence of the empire's traditional and virtually unregulated monetary system based upon silver and copper that operated with high transaction costs for both market exchanges, and to some degree for taxation.⁶³

Silver utilized for transactions by and with the state and for wholesale trade served the empire as a unit of account and store of value, but not as a currency minted into coins of a standardized and officially sanctioned denomination, weight or finesse.⁶⁴ As a precious metal it functioned basically as a numeraire. Its purchasing power depended, moreover, upon several attributes embodied in the size and form in which it was offered in payment for commodities, services and the settlement of debts. For example, in its most convenient and reliable form, namely, as imported foreign coins (particularly Mexican dollars) silver commanded a premium of up to 25% over bars, ingots and fragments of the precious metal.⁶⁵ Even the familiar silver ingot (the 'sycee' or 'shoe') varied in weight and finesse from place to place because assayers cast the metal into ingots of various sizes and finesse in accordance with customers' needs and with local conventions and preferences.⁶⁶ Silver- hoarding was institutionalised.⁶⁷ Interesting evidence from Évariste Régis Huc (1813–1860), a French missionary Catholic priest who famously travelled across 11 provinces of the Qing Empire in 1841-46, suggests that during the mid-19th century daily transactions in China Proper were conducted with copper cash and, to less extent, silver bullion (instead of

⁶² Scholliers and Zamagni, *Labours Reward*; Mayhew, 'Prices in England'.

⁶³ Peng, *A Monetary History of China*; Von Glahn, *Fountains of Fortune*.

⁶⁴ Deng, 'Miracle or Mirage? Foreign Silver, China's Economy and Globalisation of the Sixteenth to Nineteenth Centuries'.

⁶⁵ Irigoin, 'A Trojan Horse in Daoguang China?' pp. 8-11.

⁶⁶ Kuroda, 'Anonymous Currencies or Named Debts, Local Credits and Units of Account', pp. 57-80.

⁶⁷ Chen and Liu, 'Gongfu Shichang Yu Wuzhi Shenghuo'.

Spanish/Mexican coins); the only region where silver coins were in routine use was Tibet.⁶⁸ This explains why a classic account of the Chinese monetary system concluded ‘only examination of the local system at a particular time can determine the basis of the standard’.⁶⁹ Predictably, dealers in money emerged in every corner of the empire.⁷⁰

Thus, citations of nominal wage rates in primary sources in silver taels (and even in copper cash) need careful validation. References to nominal wages in silver taels can only be transformed into real wages as the product of conversions from or into copper cash – which remained until the twentieth century, the dominant medium of exchange utilized by wage dependant workers and their families for the purchase of commodities.⁷¹

Furthermore, most retail and an unknown proportion of wholesale transactions were conducted with coins (*wen*) made largely of copper minted by 50 provincial but official mints. These coins were certified but never standardized into a stable imperial set of weights and denominations.⁷² Thus a debt of ‘1000 might be paid in 1000 good copper coins ... whereas a food shop might expect only 780 coins of inferior quality’.⁷³ Coins were cast in different ways, denominations and copper content at provincial mints at different times. Their quality, acceptability and purchasing power nominally regulated by the imperial state varied significantly across space and time.⁷⁴

Literally strung together into units of higher denomination of 1000, 625 and 500 coins and assayed by private money dealers, copper coins embodied vintage as well as scale

⁶⁸ Huc, *Souvenirs d'un voyage dans la Tartarie, le Thibet*.

⁶⁹ King, *Money and Monetary Policy in China*, p. 46.

⁷⁰ ‘Miracle or Mirage? Foreign Silver, China’s Economy and Globalisation of the Sixteenth to Nineteenth Centuries’.

⁷¹ Kuroda, ‘Copper Coins Chosen and Silver Differentiated’; Kuroda, ‘Anonymous Currencies or Named Debts, Local Credits and Units of Account’.

⁷² Von Glahn, *Fountains of Fortune*.

⁷³ King, *Money and Monetary Policy in China*, p. 46.

⁷⁴ Kuroda, ‘Copper Coins Chosen and Silver Differentiated’.

effects.⁷⁵ Thus strings of coins minted under dynasties before the Qing exchanged at a significant premium over current and more recently minted coins. Good old copper coins even operated as stores of value and circulated over more extended spaces and markets.⁷⁶ Counterfeiting remained rife and virtually uncontrollable so that monetized transactions and purchases in imperial China operated with several grades of official, illegal and imperfectly arbitrated copper coins along with privately assayed and heterogeneous *liangs* or taels of silver ingots and foreign coins.⁷⁷

In short, the empire's monetary 'systems' remained virtually unregulated and the ostensibly low levels of efficiency at which they operated depended upon a plethora of private financial intermediaries dealing in a variety of silver taels and foreign coins as well as a multiplicity of good, inferior and counterfeit copper cash that majorities of the populations (including wage earners) of the Ming and Qing empire utilized to purchase goods and services. Taels retained their function as stores of value for intra-imperial and foreign trade for the settlement of debts and for transactions at officially decreed rates of exchange within and without the state.⁷⁸ Nevertheless, as a leading expert on the Qing monetary system and policy concluded, 'in China ... every monetary transaction was to an extent an exchange transaction.'⁷⁹

The authors of this leading article certainly recognized the problems involved in converting money wage rates cited in official documents as silver taels into copper cash or *wen* and resorted to a collection of exchange rates collected by Vogel.⁸⁰ Unfortunately the data in Vogel's scholarly article is geographically confined to the hinterland around Beijing

⁷⁵ King, *Money and Monetary Policy in China*, pp. 53-60.

⁷⁶ Kuroda, 'Copper Coins Chosen and Silver Differentiated'.

⁷⁷ Lin, 'Jiadao Qianjian Xianxiang Chansheng Yuanyin'; Kuroda, 'Anonymous Currencies or Named Debts, Local Credits and Units of Account'.

⁷⁸ Chen, 'Flexible Bimetallic Exchange Rates in China'.

⁷⁹ King, *Money and Monetary Policy in China*, p. 46; and vide Wong, 'Evolution of the Chinese Monetary System'.

⁸⁰ Vogel, 'Chinese Central Monetary Policy'.

and to data sets for official exchange rates between a silver tael of 37.5 grams of silver and copper cash which display considerable variations across the provinces of China.⁸¹

Furthermore bimetallic ratios between copper and silver on the one hand and between silver and copper with rice on the other that Vogel also published display high degrees of variance through time and across space.⁸² It is our view that no record for intra-imperial exchange rates that could avoid the ambiguities attached to the purchasing power of wages cited as payments in silver taels or copper cash has been published.⁸³

Even if barriers to quantification posed by the Qing monetary system could be circumvented fastidious historians with their commitments to a disciplined validation of contexts and sources may continue to maintain that most of the evidence (particularly for the states recommended wage scales documented in official sources) uncovered in this preliminary research into nominal rates paid to the pre-modern workforce of China is not yet transparent, accurate or extensive enough to help with the problem of locating the origins, onset and progression of economic divergence between the Occident and Orient.

Our stance of scepticism can, moreover, be supported from a scrutiny of the larger database from which the authors selected 327 disparate observations (clustered between the 1740s and 1800s) which they ‘pooled’ in order to estimate a ‘wage regression for eighteenth century China’.⁸⁴ We have supplemented and compared their evidence with our own smaller data set of nominal wage rates collected from other primary sources and from a selection of sources books and articles published by Chinese economic historians with recognized expertise on that empire’s labour markets.⁸⁵

⁸¹ Yu, *Zhongguo Jiage Shi*.

⁸² Vogel, ‘Chinese Central Monetary Policy’.

⁸³ Broadberry and Hindle, ‘Asia in the Great Divergence’, p.13, fn. 16.

⁸⁴ *Ibid.*, pp. 14-15.

⁸⁵ Liu, ‘Jiawu Zhanzhenghou Zhiyoude Zibenzhuoyide Nongye Guyong Laodongde Fazhan’; Liu et al, ‘A Sample of Nominal Daily Money Wage Rates for the Qing Empire’.

Nominal wage rates have long been recognized as the most intractable source of evidence for the measurement of productivity and standards of living for European economic history.⁸⁶ For China's far less extensive integrated and competitive labour markets, the information required to standardize observations for nominal wage rates into plausible estimates for the annual earnings of wage dependent proletarians is rarely recorded or clarified by the primary sources.⁸⁷

Having scrutinized the primary sources cited in footnotes to this heuristic voyage of discovery into the evidence available for Chinese wage rates, consulted the secondary literature on the empire's labour markets and constructed our own smaller sample of nominal wage rates for unskilled labour, we wish to make a number of critical but hopefully helpful observations on the calibrations offered in this useful but exploratory contribution to the economic history of Qing China.

First, Chinese primary sources uncovered so far provide entirely limited information on payments in kind (food, shelter, clothing, tools etc.). The assumption that if the source made no mention of such payments then none occurred is as the secondary literature on labour markets and waged labour suggests insecure, particularly for labourers employed on remote construction sites and for annual contracts in agriculture. Our own and other perceptions from historians who have published on Chinese labour markets suggest that nominal wage rates recorded on a monthly and annual basis are for contracts where persistently high proportions of total annual earnings consisted of payments in kind.⁸⁸

Such payments were, moreover, a feature of all pre-modern wage systems and alleviated risks associated with fluctuations in food prices and the difficulties of securing

⁸⁶ Munro, 'Money and Coinage'.

⁸⁷ For sustained endeavours to analyse European wage data consult Munro's website: www.economics.toronto.ca.

⁸⁸ Li *et al*, *Mingqing Shidaide Nongye Cibenzhuyi Mengya Wenti*; Liu, '1600-1840 Nian Zhongguo Guonei Shengchan Zongzhide Gusuan'.

currency in the forms and denominations required to remunerate labour.⁸⁹ Many observations in the primary sources for China that specify nominal wage rates that fell and/or moved below the levels required to purchase subsistence at local prices could only, we suggest, refer to government contracts for employment that included food and other supplementary payments. Otherwise the Confucian state was not paying living wages either to the soldiers or to unskilled labourers and their families that it employed.⁹⁰

Thirdly, and given that the primary sources provide clear evidence for a skill premium both for the wage norms specified by the state and nominal wage rates offered by private firms, the pooling or conflation of observations for skilled and unskilled labour imparts an upward bias to data that we wish to reconfigure and mobilize for comparisons with the real wages received by unskilled workers in the West.

Fourthly, Chinese sources refer to annual, monthly, weekly and daily wage rates, but supply virtually no information on the number of days or hours worked, which is required in order to generate estimates for annual earnings. For reasons that are not elaborated, the authors converted observations for nominal wage rates expressed on a monthly or annual basis into daily rates on the puzzling assumption that these observations referred to fifteen days a month and sixty days a year?⁹¹

Fifthly, as we have already noted considerable ambiguities and uncertainties surround the meaning and validity of most of the observations for nominal wage rates recovered from governmental sources. Their stability over long periods of time and limited variation across space leaves an impression that these records are often analogous to pay scales promulgated by the Qing state for the remuneration of soldiers and bureaucrats. Such scales normally included pay plus cost of living allowances.⁹² They embody only a tenuous

⁸⁹ Lucassen, 'The Rise, Organization and Institutional Framework of Factor Markets, Proletarianization in Western Europe and India'.

⁹⁰ He and Wei, *Huangchao Jingshi Wenbian*.

⁹¹ Broadberry and Hindle, 'Asia in the Great Divergence', p.14, fn 20.

⁹² He and Wei, *Huangchao Jingshi Wenbian*.

resemblance to the daily wage rates generated by contexts approximating to markets in Western Europe.⁹³ Furthermore, and as our comparison with the price of edible rice reveals too many of the observations derived from state sources and pooled for purposes of a regression exercise would not have provided unskilled labour working for the state with a living wage (see Table 1).

Table 1. Rice Prices, 1641-1850 (tael/picul)

Year	China's			
	average	Shanghai	Suzhou	Xiaoshan
1641-45	1.23	3.28		
1646-50	1.23	2.82		
1651-55	1.17	2.98		
1656-60	1.17	1.50		
1661-65	0.83	1.25		
1666-70	0.83	0.67		
1671-75	0.63	0.86		
1676-80	0.63	1.32		
1681-85	0.84	0.98		0.88
1686-90	0.84	0.96		0.98
1691-95	0.72	0.90		0.87
1696-1700	0.72		0.82	0.83
1701-05	0.94		1.04	0.87
1706-10	0.94		1.28	1.21
1711-15	0.90		0.9	0.92
1716-20	0.90		0.86	1.01
1721-25	0.86		1.06	1.18
1726-30	0.86		1.16	1.02

⁹³ Lucassen, 'The Rise, Organization and Institutional Framework of Factor Markets, Proletarianization in Western Europe and India'.

1731-35	0.97	1.22	1.11
1736-40	0.97	1.20	0.99
1741-45	1.11	1.49	1.14
1746-50	1.11	1.67	1.38
1751-55	1.59	1.90	1.50
1756-60	1.59	1.90	1.50
1761-65	1.67	1.84	1.61
1766-70	1.67	1.86	1.89
1771-75	1.48	1.64	1.72
1776-80	1.48	1.98	1.80
1781-85	1.56	1.91	2.06
1786-90	1.56	1.68	2.05
1791-95	1.91	1.40	2.84
1796-1800	1.91	1.21	2.37
1801-05	2.12	2.31	2.61
1806-10	2.12	2.77	
1811-15	2.09	2.55	
1816-20	2.09	2.37	
1821-25	1.89	2.49	
1826-30	1.89	2.23	
1831-35	2.35	2.64	
1836-40	2.35	2.25	
1845-50	2.19	2.09	

Source: Huang, *Zhongguo Lidai Wujia Wenti Kaoshu*.

Although the authors prudently discarded much of the wage data collected from several official sources they made a questionable strategic decision to simply merge a potentially significant share of the observations derived from official records for 1723, 1736, 1769, and 1813 into a pool of 327 observations for nominal daily wage data clustered in time between

1749 and 1820. Most of their 'scattered wage quotations' certainly relate to labour employed by the private sector and were indeed drawn 'from many sources and for many parts of China'.⁹⁴

Nevertheless and on close inspection it seems that these ostensibly more promising figures (not posted on the web) originated in judicial records and first appeared in the publications of three Chinese economic historians Peng, Wei and Wu. They are referenced but not appraised in the article. We were alerted to the complexities of deriving hard data from legal records by Jiang Shoupeng who surveyed copper cash wages for 6100 criminal cases recorded in the Qing *Xingke Tiben*. He noted that the variations in annual earnings from agricultural work ranged from 2000 to 6400 *wen*. For handicrafts they ranged from 5000-12000 *wen*.⁹⁵

Furthermore, our own smaller and complementary sample of wage quotations published in secondary sources is also based on judicial records. It has been placed on our web site and includes a disparate and difficult to standardize range of figures for nominal annual wage rates for both skilled and unskilled labour employed mainly in agriculture and in just four industries, including coal, charcoal, bricks and bricklaying.⁹⁶ Our perception is that the figures cited for wage rates drawn from legal proceedings display extraordinary degrees of variance for comparable occupations over time and across the empire. Contracts and contexts for the wage rates by occupation are almost never specified, let alone elaborated in legal sources. It is impossible to verify the hours, days, weeks or months worked. Potential payments in kind or any other conditions for employment are not specified, and several historians including Liu Kexiang and Liu Ruiya are pretty clear that food and other payments

⁹⁴ Broadberry and Hindle, 'Asia in the Great Divergence', pp. 13-17.

⁹⁵ Jiang, 'Mingqing Shiqide Beifang Laodongli Shichang'; Huang, 'Qingdai Nongcun Changgong Gongjia Zongheng Tan'.

⁹⁶ Liu *et al*, 'A Sample of Nominal Daily Money Wage Rates for the Qing Empire'.

in kind dominated contracts for unskilled labour until well into the twentieth century.⁹⁷ Alas, judicial records do not provide the homogeneous and transparent evidence required to calculate the incomes received by wage dependent labourers employed in the Qing Empire during the centuries preceding and succeeding the great divergence.

Our critique of this serious academic endeavour to compare levels of real wages between China and Europe and thereby provide statistical underpinnings for a chronology for the Great Divergence does not intend to conclude on a negative note. Quantification is nothing more than a cumulative process of gathering, reviewing and revising statistical evidence until a frontier for consensus and acceptability is reached. Furthermore, the methods pioneered by Robert Allen to convert nominal into real wages and real family incomes remain innovatory, relevant and entirely heuristic for such purposes of comparison. Unfortunately, the data currently available for nominal wage rates paid either by the state or as citations from judicial proceedings for Qing times (1644-1911) seems to be neither voluminous, transparent nor representative enough to serve as proxies either for average daily wages or for the standards of living afforded by the private sector of the Chinese economy to a definable group of unskilled urban and agricultural workers at the bottom end of an income distribution scale. There may well be nominal wage data in Chinese primary sources that could be defended as comparable to the wages paid to far larger proportions of European workforces. But the figures uncovered by these preliminary exercises in comparisons across Eurasia suggests that secure transparent evidence fit for that purpose will be hard to uncover, simply because the contractual, monetary and other conditions within which unskilled (and to a lesser extent skilled) labour was employed in both the rural and urban sectors of the Qing and other Asian economies exemplifying significant differences with the West cumulate into serious impediments to quantification. The institutional contexts which framed the returns for work performed by vast majorities of the

⁹⁷ Liu, 'Jiawu Zhanzhenghou Zhiyoude Zibenzhuoyide Nongye Guyong Laodongde Fazhan'; Liu, 'Shengzhou Gongzi Zhidude Yang'e'.

Chinese and other Asian workforces (including wage labourers) differed to a degree that simply frustrated scholarly attempts at meaningful comparisons.

Prudentially the authors resisted the temptation to make strong claims based upon empire-wide averages derived from such a disparate pool of data that *prima facie* seems so difficult to define, validate and standardize. Instead they opted to calibrate the data at their disposal into indices that refer to standards of living offered by the pre-modern and pre-divergence Chinese economy to wage dependant unskilled labour employed in just three large cities, Beijing, Suzhou and Canton. They depicted their numbers as reasonable for a substantial part of the population at the relatively low end of the income distribution.⁹⁸

For purposes of comparison with their counterparts employed in European cities the figures cited for nominal daily wage rates converted to purchasing power parities and grams of fine internationally traded silver are cited below. Their respective weights and qualities are derived from a seminal article by Ulrich Vogel. Vogel did not, however, provide the local rates of exchange required to capture the multiple purchasing power parity of the coins actually spent by Chinese workers and their families:⁹⁹

- (a) 45.6 *wen* of copper cash as a base line average for the Yangtze Delta;
- (b) 90.0 *wen* for Suzhou (the commercial capital of that region);
- (c) 89.7 *wen* for Beijing and
- (d) 83.6 *wen* for Canton.

Two primary sources already appraised are cited to support the figures generated by the regression for callenders' wage rates for Suzhou and for dockers' wage rates for Canton. For Canton a range from 30 to 80 is cited in the basic data which refers to short term seasonal

⁹⁸ Broadberry and Hindle, 'Asia in the Great Divergence', pp. 17, 30 and 31.

⁹⁹ Vogel, 'Chinese Central Monetary Policy 1644-1800'.

rates.¹⁰⁰ For Beijing the wage rate predicted by the regression (illustrated in fig. 1 of the article) derives support from just a single primary source (a private fuel store outside the capital city).¹⁰¹

The selections for Canton and Suzhou as well as Beijing are, however, justified, quoted and utilized for on the grounds that ‘as a bench-marks or comparisons with European urban wages in the following sections we chose the optimistic version of 0.08-0.1 taels wage rate for the eighteenth century in order to test the revisionists’ claim at its favourable margin.’ They also cite a footnote that indicates that seventeenth century nominal wage levels may not be far apart from the 18th-19th century.¹⁰²

The procedure of deploying outer bound estimates to test the potential validity of hypotheses is certainly heuristic, but needs to be accompanied by some discussion of its plausibility in relation to the spectrum of nominal daily wage rates cited and utilized in this article. That spectrum ranges from 30 copper cash (the Government decreed ‘norm’ monetary payments to unskilled labour working in Fujian in 1769) to around 160 copper cash for skilled construction workers employed for work at a palace in Shenyang (in Manchuria) between 1723 and 1736 and an imperial villa outside Beijing in 1766.¹⁰³

Our scrutiny of the entire collection of daily wage rates and money wage ‘norms’ published by the authors for skilled and unskilled labour for a long eighteenth century (1690s to 1820) leaves us, however, with an impression that a majority of the documented figures (cited in the text and footnotes to the authors’ article and working paper) that refer to nominal daily wage rates and norms for ‘unskilled labour’ look closer to a modal rate of 40-50 copper cash per day than their ‘optimistic and outer bound numbers’ they ‘constructed’ and ‘selected’ for Beijing, Suzhou and Canton of 0.08-0.10 silver taels or 80-100 copper cash

¹⁰⁰ Van Dyke, *Canton Trade*.

¹⁰¹ Broadberry, and Hindle, ‘Asia in the Great Divergence’, pp. 34-6.

¹⁰² Li Bozhong, *Agricultural Development in Jiangnan*, p. 94; Allen, *et al*, *Living Standards in the Past*; Broadberry and Hindle, ‘Asia in the Great Divergence’, p. 6.

¹⁰³ Broadberry and S. Hindle, ‘Asia in the Great Divergence’, Table 1 and an undated paper by Moll-Murata.

generated by a regression, based upon a 'pool' of ambiguous data.¹⁰⁴ The impression implies that if 0.04 taels are by default recognized and utilized by economic historians as a modal or representative nominal daily wage rate for unskilled agricultural and urban labour, three negotiable conclusions follow.

First (and in contrast to the higher numbers proposed by the authors of this innovatory attempt at quantification), it could mean that divergence may have been a stream for more than a century before, the period after 1750 favoured by the California School as marking its onset. Indeed such data could suggest that the gap between North-western Europe and China may have been present and widening already in the 1600s.

Secondly, that nominal wage rates combined with Allen's innovatory methods of conversion to real wages afforded by the relatively backward cities of Eastern and Southern Europe to their unskilled labourers at the lower ends of income distributions would look superior to the real incomes afflicting their counterparts in China and almost certainly in India, Japan and the Ottoman Dominions as well.¹⁰⁵

Our final conclusion (which is shared by an older generation of economic historians with recognized expertise on China) is to recommend scepticism towards nominal wage data in print for the Chinese empire unless and until future archival research uncovers new and more transparent statistics, meanwhile attempts to forge a consensus around validated data for nominal and real (bare bones and respectable) wages are doomed to frustration. That scepticism might well (as a model historical and statistical survey of nominal wage data available for 18th century India showed) be extended to the Mughal Empire.¹⁰⁶

The authors of this seminal article have travelled down the right road. We hope that they might proceed beyond the present *cul de sac*. Perhaps, however, the current generation of economists and economic historians endeavouring to map and construct explanations for

¹⁰⁴ Broadberry and Hindle, 'Asia in the Great Divergence'; Allen *et al*, *Living Standards in the Past*.

¹⁰⁵ Broadberry and Hindle, 'Asia in the Great Divergence', p. 30.

¹⁰⁶ Broadberry and Gupta, 'The Early Modern Great Divergence'; Sivramkrishna, 'Ascertaining Living Standards in Erstwhile Mysore, Southern India'; Parthasarathi, 'Wages and Competitiveness in the Eighteenth Century'.

the long run growth of the Chinese empire may have to recognize that the Kuznetian paradigm for quantification is simply not viable for the comprehension of Asia's economies. Asia's imperial states were neither strong nor efficient enough to collect data fit for the purpose of centralized governance and *mutatis mutandis* providing historians with wage data that are secure enough to facilitate macro-economic comparisons across Eurasia. Facts in the form of statistical information can travel but rarely in first class formats.¹⁰⁷ For pre-modern times the content, contexts and contracts from which evidence for nominal wage rates emerge needs careful elucidation before more plausible conjectures about relative standards of living across the polities and cities of Eurasia can be drawn.

An alternative and potentially defensible conclusion could be drawn from this impressive body of nominal wage data collected by Moll-Murata and our own attempt to supplement that evidence with reference to secondary literature on pre-modern Chinese labour markets. That conclusion, or rather impression, would be that the payments system for unskilled labour during Qing times depended to a significant and persistent extent and degree on *gongshi* and *gongjia*. The former probably approximated to Allen's 'bare bones basket' for subsistence for workers while they were on the job. The latter recorded in documents as nominal money wage rates was the supplement in cash earned and required by low skilled workers to maintain a family including themselves for the 'months' of the year when they were not gainfully employed and fed.¹⁰⁸

For purposes of comparison to count the cash component as equivalent to wages paid to workers of comparable skills in European cities, would be to underestimate the 'living wages' or family incomes afforded to the tiny but low skilled proletariats of Qing China and Mughal India's agrarian economies.¹⁰⁹ Perhaps, and as a recent and seminal text reveals, their

¹⁰⁷ Howlett and Morgan, *How Well Do Facts Travel?*

¹⁰⁸ Li *et al*, *Mingqing Shidaide Nongye Cibenzhuyi Mengya Wenti*; Liu, 'Jiawu Zhanzhenghou Zhiyoude Zibenzhuyide Nongye Guyong Laodongde Fazhan'.

¹⁰⁹ Allen *et al*, *Living Standards in the Past*.

standards of living and place in economies of these empires expose very little that is significant for reciprocal comparisons between the Orient and Occident.¹¹⁰

¹¹⁰ This argument is elaborated in another paper, vide Deng and O'Brien, 'Clarifying Data for Reciprocal Comparisons of Nutritional Standards of Living in England and the Yangtze Delta (Jiangnan)'.

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