



Contents lists available at ScienceDirect

## Explorations in Economic History

journal homepage: [www.elsevier.com/locate/eeh](http://www.elsevier.com/locate/eeh)

# Evolution of living standards and human capital in China in the 18–20th centuries: Evidences from real wages, age-heaping, and anthropometrics

Joerg Baten<sup>a</sup>, Debin Ma<sup>b,\*</sup>, Stephen Morgan<sup>c,d</sup>, Qing Wang<sup>a</sup>

<sup>a</sup> Dept. of Economics, University of Tuebingen, Mohlstr. 36, 72074, Tuebingen, Germany

<sup>b</sup> Economic History Dept., London School of Economics, Houghton Street, London WC2A 2AE, UK

<sup>c</sup> School of Contemporary Chinese Studies, University of Nottingham, Nottingham, NG8 1BB, UK

<sup>d</sup> School of Historical Studies, University of Melbourne, Melbourne 3010, Australia

## ARTICLE INFO

### Article history:

Received 10 November 2008

Available online 19 September 2009

### Keywords:

China

Standard of living

Human capital

Real wages

Height

Numeracy

## ABSTRACT

This article mobilizes and integrates both existing and new time series data on real wages, physical heights and age-heaping to examine the long-term trend of living standards and human capital for China during the eighteenth to twentieth centuries. Our findings confirm the existence of a substantial gap in living standards between China and North-western Europe in the eighteenth and nineteenth centuries. They also reveal a sustained decline in living standards and human capital at least in South China from the mid-nineteenth century followed by a recovery in the early twentieth century. However, comparative examination of age-heaping data shows that the level of Chinese human capital was relatively high by world standard during this period. We make a preliminary exploration of the historical implication of our findings.

© 2009 Elsevier Inc. All rights reserved.

## 1. Introduction

One prominent feature that underpins the phenomenal catch-up of East Asia from very low levels of per capita incomes after World War II is the rapid accumulation of physical and human capital. [Godo and Hayami \(2002\)](#) compiled data on average years of schooling to show that the Japanese catch-up in average years of schooling preceded that of per capita income relative to the US in the pre-War period. Unfortunately, works with such a long-term perspective are relatively scarce given the paucity of systematic and comparable data, especially for China.<sup>1</sup> Similarly, despite the voluminous literature on China's long and tumultuous nineteenth century, which saw social and economic dislocation from the onslaught of Western imperialism and the devastating domestic rebellions, quantitative indications of a systematic kind are sorely lacking for long-term trend in welfare and living standards.

Our paper represents the first attempt to construct a more comprehensive profile of the evolution of Chinese living standards and human capital in the nineteenth and twentieth centuries based on the integration of large-sample based real wage and anthropometric evidences. Our data series confirm a general decline in living standards and human capital after the mid-nineteenth century followed by a recovery only at the turn of the century. Our real wage data also reveal Chinese living stan-

\* Corresponding author. Fax: +81 3 3341 0220.

E-mail address: [d.ma1@lse.ac.uk](mailto:d.ma1@lse.ac.uk) (D. Ma).

<sup>1</sup> [Godo \(2006\)](#) extended the average years of schooling data to colonial Taiwan and Korea. For physical capital accumulation in East Asia, see the controversial summary article by [Paul Krugman \(1994\)](#). For a summary of the East Asian path of labor-intensive industrialisation based on quality human capital formed in the traditional sector, see [Sugihara \(2007\)](#), "The Second Noel Butlin Lecture."

dards were probably closer to the relatively backward parts of Europe but lower than North-western Europe in the eighteenth and nineteenth centuries. So contrary to recent revisionism (Pomeranz, 2000; Lee and Wang, 1999), our studies confirm the traditional view that the divergence in living standards and per capita incomes between Europe and China already existed before the industrial revolution and only widened from the nineteenth century and afterward. However, in contrast to the findings based on real wages and heights, our age-heaping index – a measure of Chinese numerical abilities – reveals a relatively high level of Chinese human capital, which was closer to that of North-western Europe for eighteenth and nineteenth centuries than countries with a comparable low level of living standards.

We explore the historical implication of this intriguing combination of relatively low living standards but high human capital in China at the time. The concluding section makes some preliminary discussion on the unique institutional features in traditional China, such as the Civil-Service Examination, a unified character-based language and a precocious government bureaucracy, as factors that contributed to relatively higher level of literacy and numeracy without necessarily generating sustained economic growth to support a higher living standard in the early modern era. We posit that this large reservoir of human capital in early modern China and East Asia formed important strategic factors to underpin the region's rapid economic catch-up in the modern era once the institutional and ideological changes were accomplished.

The rest of the paper is divided into three sections to discuss the findings derived from real wage, heights and age-heaping, followed by a concluding section.

## 2. Real wages

In the debate on the comparative standard of living of Asians and Europeans on the eve of the Industrial Revolution, a recent wave of revisionist scholarship has claimed Asian living standards were on a par with those of Europe in the eighteenth century. However, the evidence brought to this debate is fragile, using indirect comparison of scattered output, consumption or demographic data. This contrasts with our knowledge of real incomes in Europe where scholars since the mid-nineteenth century have been compiling databases of wages and prices for European cities from the late Middle Ages into the nineteenth century when official statistics begin.<sup>2</sup>

The ideal measure for comparison would be per capita GDP, which has the advantage of being the most acceptable measure of the overall economy and productive capacity, despite the long-held caveats that it was not able to capture non-market income often crucially important for developing economies, and distributional dimensions. Unfortunately, there are no meaningful GDP series for China before the twentieth century.<sup>3</sup> The influential estimates by Maddison are largely guess-work based on backward projection from twentieth century estimates. While highly questionable, they might still be useful as a guide for rough comparisons across benchmark years, but they give little indication of fluctuations between the benchmarks.

Recent studies by Allen et al. (2007, 2009) represent the most ambitious attempt to use real wages to fill this gap for China in the eighteenth and nineteenth centuries. The wage series in these studies are constructed from data obtained from Chinese imperial ministry records, merchant account books and local gazetteers, which have been deflated using appropriate cost of living indices reconstructed from consumption baskets. The Allen et al. paper concentrates on the wage histories of Canton (south China), Beijing (north China), and Suzhou and Shanghai in the lower Yangzi (east China), because they are comparable to the large cities in Europe and Japan for which we have similar information.

While the Allen et al. study is the most comprehensive so far in terms of data coverage and methodology, their comparison concentrates only on the real wage of urban unskilled workers in major cities of Europe and China. This raises questions of the representativeness and comparability of their findings.<sup>4</sup> Despite these qualifications, which were extensively discussed in the Allen et al. paper, we have reason to believe their finding represent a better approximation of the relative levels of real income at the two ends of Eurasia for the eighteenth and nineteenth centuries than any available alternative estimates. Clearly, future research is needed to produce more definitive findings in this area. Fig. 1 reproduces one of their real wage comparisons, which paint a less optimistic picture of Chinese or Asian performance than the revisionists suggest.

Fig. 1 confirms the traditional view that the divergence in living standards between major urban centers of China and those of the Netherlands and England was already present in the eighteenth century. The standard of living of workers in London and Amsterdam was much higher than that of workers in Beijing or Suzhou in the eighteenth century. But a major surprise is that unskilled laborers in major cities of China – poor as they maybe – had roughly the same standard of living as their counterparts in central and southern Europe, the Ottoman Empire, India, and Japan for the larger part of the eighteenth century.<sup>5</sup>

Secondly, from the mid-nineteenth century, real wages in the industrial core of Western Europe such as Leipzig began to overtake those of China. In contrast, Milan remained at a similarly low level as China during this period. By the twentieth century, enough progress had occurred in even the backward parts of Europe (as shown in Milan) and Japan that their stan-

<sup>2</sup> See Allen et al. (2007) and (2009) for a review of the data issues and Ma (2004) for a general review of the revisionist scholarship.

<sup>3</sup> See Fukao et al. (2007) for a review of GDP data in East Asia.

<sup>4</sup> One obvious question is the representativeness of the largest and fastest growing cities in Europe. Allen (2001) has shown that in smaller English cities such as Oxford, real wages were much lower than those in London, but they were still higher than in China (also see Bassino and Ma, 2005).

<sup>5</sup> See Allen et al. (2009), Fig. 6 for other Asian cities. As their paper finds no major differences in levels of real wages among the three cities of Beijing, Canton and Suzhou/Shanghai, the real wage series for Canton is omitted in Fig. 1.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات