



Stature and economic development in South China, 1810–1880

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ABSTRACT

Foreign influence on South China increasingly disrupted the economy from the late eighteenth century. Many scholars believe the standard of living fell, while others point to positive gains from increased integration with the world economy. The paper estimates the secular trend in the average height of the southern Chinese in the nineteenth century based on data from prison registers in colonial Australia. Contrary to the pessimist view, height began to decline obviously only from the 1850s, a product of the dislocation effects of revolts and rebellions. At 163–164 cm, the Chinese were of similar stature to the military conscripts of some European countries in the early-to-mid nineteenth century.

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1. Introduction

Before the “great divergence” in the economic trajectory of Europe and East Asia at the end of the eighteenth century, parts of China might have had a level of economic wellbeing similar to advanced regions in Europe (Pomeranz, 2000). Smithian growth in Europe combined with the huge social and economic upheaval in China during the nineteenth century saw China increasingly lag behind the advanced capitalist economies. The effect was to reduce severely per capita income from which China was not to recover until the 1950s, according to Maddison (1998, 2001, 2003). However, conventional economic data to construct times series for estimating the past standard of living in China are far inferior to other large countries. Height data have often filled such data gaps for other pre-twentieth century economies, serving as an indicator of the level and changes in the standard of living. Surprisingly few sources of height data have been discovered for China dating from before the twentieth century compared with Europe and North America. Height data for nineteenth century-born Chinese that have been reported include Japanese colonial surveys in Taiwan (Olds, 2003), Chinese immigrants leaving the United States (Murray, 1994), the health examination records of the Chinese railways (Morgan, 2004), and Chinese imprisoned in the United States (Carson, 2006, 2007).

The height data presented here are the earliest so far analysed that have been based on the records of individual Chinese. These data were compiled from prisoner registers that recorded the personal details of those who were sentenced to custodial terms in the Colony (later State) of Victoria, Australia, which are held at the Public Records Office of Victoria (PROV). The earliest-born individual in our data set was a flute player called Ah Ching from Canton (Guangzhou), who was born in 1798 and arrived in Melbourne in 1862 to join his son Ah Fook, a “digger” (gold miner) at Blackwood on the Victorian gold fields, who had arrived in 1855. They were both convicted on charges of larceny (petty theft) in October 1868 and sentenced to 3 months imprisonment with hard labour (VPRS 515/12/211–212).

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These data for Chinese prisoners enable us to re-assess the history of human welfare in China for the three decades either side of the first Opium War (1839–42) that opened China and the subsequent mid-to-late century rebellions. These were tumultuous years for China. Widespread economic and social disruption is generally thought to have depressed the standard of living compared with that achieved during the “long eighteenth century” of the mid-Qing dynasty (Pomeranz, 2000, 2005; Li, 2005). Most evidence for the deterioration in living standards is inferential and the claim of impoverishment has long had its sceptics (Faure, 1985; Wakeman, 1997 [1966]). The estimates we derive from the Chinese imprisoned in Australia show average height during the first half of the nineteenth century was more or less static, and the decline only began after the mid-century. Further, at 163–164 cm tall the Chinese were similar in stature to military conscripts in France, for example (Weir, 1997). However, their height declined about 2.0–2.5 cm during the second half of the century, whereas in most parts of Western Europe height began an upward trend.

The next section of the paper section will discuss Chinese migration to Australia and the anthropometric approach. Section 3 will describe the sample; the next section will discuss selection biases in detail, followed by a discussion of the methods used to adjust recorded height for age-related shrinkage of elderly subjects. Section 6 will present the results of the regression analyses of the height series, followed by a discussion of comparative findings and explanations for the reported trend.

2. Background and the anthropometric approach

Early Chinese immigration to Australia is an often told story that begins with a handful of Chinese who arrived in Australia in the 1820s and 1830s to work as shepherds in the pastoral industry (Palfreeman, 1967; Choi, 1975; Yong, 1977; Cronin, 1982; York, 1994; Jones, 2005). With the discovery of gold in the 1850s, tens of thousands of Chinese came to the colonies of Victoria and New South Wales, and much later Queensland. The rapid increase in Chinese, who briefly accounted for more than one-fifth of the miners on some Victorian gold fields, resulted in early conflict between European miners and the “celestials”, as the Chinese were sometimes then called. The colonial governments introduced landing or poll taxes to restrict Chinese entry, though these restrictions soon lapsed, in part because the rich and easily worked alluvial gold petered out and many of the Chinese miners returned home. Despite fears among European miners that the Chinese would overrun the gold fields, the highest estimate was about 40,000 in early 1859 (Serle, 1963; Turner, 1973 [1904]). According to official mining statistics, Chinese resident in the major gold districts of Victoria declined steadily from 33,673 in 1858 to 20,933 in 1865, the year Victoria repealed the poll tax, to 8486 in 1880 (Cronin, 1982).

Some Chinese remained in Australia and engaged in a wide range of activities, though we know little about who stayed and who returned. Still others arrived to work in a variety of new industries in the growing colonies. Besides market gardening and petty retail, many Chinese laboured in clearing land for farming and worked the tailings of abandoned gold mines. In the 1880s, renewed fears about “the chinese menace” saw most of the colonies again introduced restriction on the entry of Chinese workers (Serle, 1971). By that time very few of the Chinese who were in Australia had originally arrived as gold diggers. Those from the Victorian gold rush who remained were increasingly elderly and the prison records show them jailed for crimes of destitution and poverty, such as vagrancy. In 1881, 55 percent of the Chinese were 45 years or older (Cronin, 1982). Some of the elderly died in prison or the benevolent asylums to which they were transferred, according to the prison registers. At Federation in 1901 there were about 30,000 Chinese in Australia, of whom there were 7349 in Victoria (Palfreeman, 1967; Cronin, 1982). Many were Chinese who had arrived from the 1880s. This group, who are well documented in the Australian immigration archives, appear to have been more skilled and prosperous compared with those who were imprisoned, and on average were taller. They were engaged in market gardening, fruit and vegetable retailing, restaurants and shops, and a variety of activities related to the import–export trade (Morgan, 2006a,b).

The anthropometric method: Final adult height is a sensitive indicator of the net nutrition of adults during their growing years and indirectly the impact of the economic and ecological environment on the development of the human organism (Steckel, 1995; Steckel and Floud, 1997). Attained adult stature reflects the trade off between the amount and quality of nutrients available for growth from childhood to maturity against the demands of body maintenance, disease and physical exertion. The secular change in the average height of a human population reflects broadly the change in the population’s biological wellbeing as a consequence of fluctuations in the available inputs to human growth.

Human height can be viewed as a net output measure for human growth, whereas income data such as wages are an input measure that indicates potential for a better life. Within a population group such as the Han Chinese, the human biology literature would argue the environment rather than genetics explains the differences in the average height of a population over time, across regions or among social classes (Schmitt and Harrison, 1988; Eveleth and Tanner, 1990; Bogin, 1999). Ultimately, other things being equal, the secular trend in average height measures the change in the nutritional welfare of the population, which correlates with fluctuations in the economy, the incidence of disease, access to public goods, and other environmental factors that affect net nutrition (Steckel, 1995; Komlos, 1994; Komlos and Baten, 1998).

While most anthropometric history has focused on Europe and North America (Komlos, 1994; Steckel and Floud, 1997; Komlos and Cuff, 1998; Cuff, 2005), there is a small body of literature on Asia. These studies include Shay (1994), Mosk (1996) and Honda (1997) for Japan; van der Eng (1995) for Indonesia; Gill (1998) for Korea; Brennan et al. (1994) for India, and several studies of Taiwan and China (Morgan, 1998, 2004; Morgan and Liu, 2007; Olds, 2003; Lee and Wang, 1999). Anthropometric studies that include large numbers of nineteenth century Chinese are recent (Baten and Hira, 2006; Carson, 2006, 2007; Morgan, 2004, 2006a).

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