Textile Wages, Women’s Earning Power, and Household Living Standards in the Yangtze Delta, 1756–c.1930.

Abstract: This paper explores the real incomes of textile women and their economic contributions to household subsistence in the Yangtze Delta from 1756 to 1930. It finds that the daily real income by traditional hand spinning and weaving experienced a steady decline in the whole investigating period. However, when hand weavers used machine-made yarn, textile productivity improved and the daily return had an obvious increase. While this new method of hand weaving induced relatively high real incomes between the 1880s and early 1910s, in the longer term hand weavers’ earnings generally declined. Nevertheless, women’s annual remuneration still averaged around 65% of the income needed for a household’s subsistence. When hand weaving stagnated since the 1920s, handicraft textile women contributed less than 20% of household subsistence expense, while the wages earnings of women who worked in urban mills hovered between 40% and 60% of a household subsistence budget. The earning power of Yangtze textile women was, on the one hand, depended on commercialization, global trade and textile industrialization in different historical eras, on the other hand, conditioned by their life circles and household labor allocation. No matter what kind of textile production women did, their economic contribution to the household throughout the period should not be underestimated.

Keywords: Textile, Household Living Standard, Women’s Wages, Textile income, Industrialization

1. Introduction

In recent years, economic historians have increasingly emphasized women’s earning power as well as their economic remuneration as significant indicators for household welfare. While earlier research on household living standards largely relied on men’s wages, exclusively focused on urban unskilled wage labors, and ignored household life cycles (e.g. Allen 2009, Allen et al. 2011), recent studies have criticized such one-sided approaches by including the incomes of women and children and adding on a life cycle dimension (Horrell, Humphries, and Weisdorf, 2021; Boter, 2020). This historiographical shift emphasizes the prominence of women’s income and aims to come to a more accurate estimation of household living standards. It is highly relevant to extend this approach to the Chinese case, as the traditional view is still that China has always been a male breadwinner society.[[1]](#footnote-1)

Earlier regional studies, largely focused on the impact of China’s opening to global trade and industrialization in the early twentieth century, have shown that the economic contributions of Chinese women were indeed important. For example, John Lossing Buck’s (1937) farm household data (1929-1933) showed that rural women supplied 20% of total farm labor input at the national level. Based on Buck’s data, Johnson, Parish, and Lin (1987) argued that women earned on average about 14% of total household income, even though the proportion varied across regions, as women’s labor force participation was shaped by the nature of crops and the degree of commercialization in a region. A positive impact of markets and industrialization was also found in the case of Ningbo area, where Mann (1992) found that foreign trade and industrialization enhanced women’s work opportunities, premised on their class, locality, household consumption and life cycle.[[2]](#footnote-2) Similarly, based on household-level data in Wuxi County, Kung and Lee (2010) argue that women’s contributions to total household income were similar to men’s, thus undermining the idea of China as a male breadwinner society. In the same vein, Benjamin and Brandt (1995) utilized the Manchurian household data for 1935 to justify that women’s direct contribution to household income was almost the same with that of males in the commercialized areas of Northeast China. In contrast, Bell (1994) was less optimistic on women’s actual living conditions. She emphasized that although women’s income was vital for household economic viability, their social status was likely to be depressed by local culture and norms.

While some empirical evidence on women’s importance for the household economy is thus available, this mostly pertains to the early twentieth century, particularly in the context of China’s involvement into global market and modern industrialization. However, to what extent and how Chinese women played an economic role in household welfare prior to these developments is still less clear. This obscures other potential mechanisms than globalization and modernization that might affect women’s economic power originating in the pre-industrial period. Indeed, the scant quantitative data in pre-industrial China makes it difficult to accurately measure women’s economic role. Even household survey data merely provides fragmentary evidence on women’s earning power, primarily in terms of observable subsidiary incomes.

Nevertheless, some previous studies complement such scanty analyses of imperial China. Xu (1992) collected valuable primary sources about the productivity and real earnings of cotton textile producers in the Yangtze Delta during the Ming and Qing periods (1360s -1910s). Women’s real earnings from textile production was argued to be similar to men’s earnings in agriculture. In Songjiang’s (see Map 1) heyday of cotton production in the eighteenth century, women’s textile income could even support whole families (Li, 2009, 394). This finding echoed what Kung and Lee as well as Benjamin and Brandt assumed, namely that Yangtze women once played a breadwinner role in household subsistence. Partly based on Li’s estimates, Allen (2009) concluded that the real earnings of Chinese textile women in Yangtze Delta declined since the 1850s, leading to a stark household immiseration. The issue of female earnings has additionally been discussed, though more as a sideline, in the “Great Divergence” debate. The involutionist view insisted that Yangtze farming households hovered around subsistence level for centuries, not least because of the small income of female household members (Huang, 1990). However, this argument was refuted by Pomeranz (2000, 320) and Li (2009, 388) who contended that female earnings by textile were not below subsistence at least in the eighteenth-century China.

Benefiting from previous studies, this paper delineates the trend in women’s income/wage as well as their household economic contribution in Yangtze Delta over a long run (1756 to 1930). It attempts to detect and compare relevant factors that influenced women’s earning power in different historical periods. We focus on cotton-textile producing women in the Yangtze Delta for several reasons. First, women have been predominant in cotton textile manufacturing either within household scene or in modern cotton mills for centuries. The analysis of this sector not only embodies a long-term trajectory of female economic remuneration but also enables comparison of the earning power of women with two identities: rural household production and modern industrial workers. Second, the typical household labor division of “men plough and women weave” had become prevalent in the weaving center of Yangtze Delta since the mid-Qing period[[3]](#footnote-3) (Li, 1996, 106). This means that women’s economic contribution in this context is more conveniently measured, because the majority of incomes generated from cotton textile production can be ascribed to them.[[4]](#footnote-4) Third, cotton textile production experienced several major changes in the highly commercialized and industrialized Yangtze Delta from the late nineteenth century to the 1930s, which provides a good perspective to comprehend and compare different mechanisms behind those changes in the time. Last but not least, the prominent economic role of Yangtze Delta in Chinese history makes this region a widely discussed case study for international comparison on various issues of economic history (Pomeranz, 2000; Allen et.al., 2011). By gauging the long-term evolution of women’s income in Yangtze Delta, we hope to provide the Chinese evidence in the global comparison.

The rest article proceeds as follows. The next section starts with a brief description of the household economy and textile production in Yangtze Delta. It explains the household labor allocation, the productivity and the technology of textile production in a historical perspective. Section 2 gives a long-term estimation of women’s income/wages between 1750 to 1930. The penultimate section looks into women’s economic contributions in relation to household subsistence. The last section concludes.

1. Labor allocation and textile productivity in Yangtze textile households

The Yangtze Delta geographically included eight prefectures of Suzhou, Songjiang, Changzhou, Zhenjiang, Yingtian (Jiangning), Hangzhou, Jiaxing and Huzhou in imperial China (Li, 1998, 3). In the early seventeenth century, ecological limitations and the difficulty of irrigation forced Yangtze farming households to cultivate cotton instead of rice, particularly in the higher terrain of Songjiang prefecture and Taicang department. Together with the limited land resources and high population density[[5]](#footnote-5), cotton production increasingly prevailed in the Yangtze area, providing a major source of income next to agriculture. During the mid-eighteenth and the nineteenth century, Songjiang had become the major export region from which cotton cloth was exported to North China via the Grand Canal, to Jiangxi and Hubei-Hunan and thence to Guangdong and Guangxi in the south. Whereas until 1860 around 45% of all households throughout China engaged in cotton textile production, the proportion of textile households reached to 65% in Jiangsu province and particularly 90% in Songjiang (Xu, 1992, 211)[[6]](#footnote-6).

Map 1 – Yangtze Delta (1644-1911)



source: Administrative map of the Yangtze Delta in Qing dynasty (Li, 1998, xviii).

Accompanying the commercialization of cotton production, household labor division experienced a transformation. In Ming China,[[7]](#footnote-7) cotton manufacturing was not exclusively conducted by women; men also participated in this activity (especially weaving) during agriculturally slack seasons. Meanwhile, rural women formed an auxiliary labor force in farming, undertaking tasks such as pulling seedlings and harvesting. Gendered labor division between agriculture and cotton textile production became manifested with the introduction of double cropping system and the subdivision of farms. According to B. Li (1997, 11), the average size of paddy land per Yangtze farming household decreased to 10 mu (0.67 hectares) since the early-Qing period.[[8]](#footnote-8) An adult male laborer could undertake all agricultural tasks on this arable land without the help of female members.[[9]](#footnote-9) Men’s agricultural productivity freed women from land farming and diverted more labor to cotton spinning and weaving. This gendered labor allocation between agriculture (men) and handicraft cotton production (women) became predominate since the mid-Qing dynasty in Yangtze Delta. Even during agricultural peak season, women were rarely seen in fields. Instead, seasonal farm hands were more frequently hired by households, resolving labor scarcity when women spun and wove at home. A family of five normally deployed one adult woman to exclusively conduct cotton weaving. The elderly and child female members assisted with hand spinning. Although their physical strength was not as strong as an adult woman, such auxiliary workers produced much of the necessary yarn for the female hand weaver (Bossen and Gates 2017). The cost of such labors was minimal to most households. Nevertheless, not all households in Yangtze Delta both spun and wove. Those households without sufficient labor or capital, either conducted spinning or weaving.

Since the late nineteenth century, hand spinning increasingly lost competitiveness under the pressure of cheap foreign (and later domestic) machined-made yarn. This nevertheless brought new opportunities for textile households, as they could concentrate on cotton weaving with cheaper machine-made yarn. In 1894, the consumption of mechanized yarn for hand weaving was only 23.42% of all consumed yarn throughout rural China, but this proportion rose to 72.33% in 1913 (Xu, 1992, 237). In the face of the competition from modern textile industry, household textile production in the whole Yangtze Delta experienced asymmetric development. In the areas where the vitality of hand weaving was preserved, the labor allocation of “men plough and women weave” was more likely to be maintained. Otherwise, men and women had to find alternative ways for living.[[10]](#footnote-10) Some textile households had abandoned cotton production entirely and focused on other activities such as selling vegetables and knitting on the outskirts of Shanghai. Mechanized Shanghai cotton mills, on the other hand, attracted young men and women (particularly from weaving centers like Songjiang and Taicang (Ma and Wright, 2010). Due to the patriarchal norms, men enjoyed more working opportunities and higher wages in labor market. This also applied to the textile wage workers in the Shanghai cotton factories in the early twentieth century. Even though since the 1920s, Shanghai female mill hands exceeded their male counterparts in numbers (Honing, 1986), their average wage was still predominately lower than that of male labors.

The preference for female workers might be regarded as a way to control production cost, but on the other hand it also ensured women to earn a cash income during the stagnation of household cotton production. Such occupational change for textile-producing women was connected to the variations of household labor allocation. Although it is difficult to generalize the changing patterns for the whole Yangtze Delta, some case studies in Xu’s research indicate that the size of landholding of rural families was a significant factor influencing strategies of household labor allocation, young unmarried girls from landless households were the first female group migrating to cotton mills. Moreover, married women were inclined to weave (sometimes next to field work) at home with their husbands working outside. According to Xu’s oral histories (1992, 249, 250), in 1920, women complained about their husbands’ meager agricultural income and said that household expenditure all relied on their weaving earnings. A woman in Jiangqiao 江桥[[11]](#footnote-11) had to weave in domestic household when she was pregnant, while her husband worked far away in a rice mill in Hangzhou. In another textile household without arable land, the child bride wove and her mother-in law spun to support the subsistence of the family. Similarly, the daily expense of a household with very little rented land (1.3 mu or 0.09 hectare) depended on hand weaving by female family members – especially the son’s wife.

The development of textile technology not only influenced the gender division of family labors but also their productivity and the corresponding nominal earnings. In Ming and Qing China, textile technology consisted of the spinning wheel and hand loom. Most Yangtze textile households adopted the single spindle wheel during the Ming period. The average daily production of cotton yarn for a female spinner was around five *liang* 两.*[[12]](#footnote-12)* In the later Qing period, multiple-spindle wheels were increasingly used by adult females. By using this kind of equipment, one adult woman could double her yarn production. However, historians doubt whether the multiple-spindle wheels were extensively used in rural Yangtze households. Xu (1992, 46) admits that the three-spindle wheels were once utilized in some Yangtze areas such as Shanghai, Puxi, Baoshan and Jiading, but did not become widespread in the whole Yangtze region because of its high requirements of manual strength and spinning skills. Li (2000, 46), concludes that the multiple-spindle wheel was predominantly employed in the most advanced regions in the Delta.

On the other hand, shuttle looms were used for hand weaving in both the Ming and Qing periods.[[13]](#footnote-13) Producing one bolt of cloth required 18-20 liang of cotton yarn, which means that four spinners working together could satisfy the demand for yarn of one weaver by using the single spindle wheel. Between the 1660s to 1720s when rural households both spun and wove, they normally required 7 days to produce one bolt of cloth. In later periods, the working days were reduced to 6 days, four of which were spent on spinning, another on preparation activities such as ginning, fluffing and sizing and one day on weaving (Xu, 1992, 51).[[14]](#footnote-14) This productivity doubled by the late nineteenth century when rural weavers abandoned hand spinning and used imported machine-made yarn to weave, and daily production of native cloth for a female weaver was around 1.5 bolts (Xu, 1992, 246).

1. The real earnings of Yangtze textile women: c.1750-c.1930

This section will delineate Yangtze women’s textile incomes from the 1750s to the 1930s and in particular compare their earning power in the stages of blossoming household production in the eighteenth and early nineteenth century, and in the period of transition due to foreign competition for textile households in the late nineteenth century. As many Yangtze women alternatively started to work in modern cotton mills in this period, we will also look at the urban wages in textile factories since the 1890s, and compares these to women’s earnings from handicraft production. This allows us to gauge the impact of globalization and industrialization on women’s earning capacity.

The income data of Yangtze female textile workers are based on studies by Shi (1987, 79) and Xu (1992, 176). Shi provides income data for several time periods between 1644 and 1849 (table 1). The net income from cotton textile production was converted into its equivalent in terms of the volume of rice. Shi estimated the net profit of producing one bolt of native cloth was the price of cloth per bolt minus the price of ginned cotton (1.125 catty).[[15]](#footnote-15) Then she converted the net income data into the volume of rice based on the price of rice per “shi 石”[[16]](#footnote-16) at different periods. This estimation method was also adopted by other scholars (Li, 2009; Xu, 1992). According to Xu (1992, 88, 209-210), one bolt of standard native cloth in the Yangtze Delta weighted 1.09 catty.[[17]](#footnote-17) One catty of ginned cotton was made from three catty of raw cotton, and yielded one catty of handmade yarn which in turn was used to manufacture one catty of native cloth. In this respect, producing one bolt (catty) of native cloth entailed one catty of ginned cotton or cotton yarn. As previously discussed, in the Qing period, one bolt (catty) of native cloth equaled 6 workdays by using the single spindle wheel. Therefore, the daily net income from textile production was the price of one bolt (catty) of native cloth minus the price of one catty of ginned cotton divided by 6. When the mechanized yarn was used since the late nineteenth century, the productivity of hand weaving improved to 1.5 bolts of native cloth per day. The day net profit of each textile woman was the price of 1.5 bolts of cloth minus the cost of 1.5 catty of mechanized yarn. In both cases the labor cost of additional textile household members was not taken into account, as it is assumed to have been unpaid.

Table 1. The net profit of hand weaving between 1756 to 1849

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| year | price of row cotton (wen/catty) | cost of native cloth per bolt (wen) | Price of native cloth (wen/ bolt) | net income of native cloth per bolt (wen) | price of rice (wen/shi) | net income of one bolt of native cloth (rice:dou) |
| 1756-1776 | 33.00 | 85.50 | 250.00-270.00 | 227.00-252.00 | 1440.00 | 1.26-1.40 |
| 1776-1796 | 40.00 | 103.60 | 200.00-400.00 | 96.40-296.40 | 4000.00 | 0.24-0.74 |
| 1800-1820 |  |  |  | 200.00 | 4000.00 | 0.50 |
| 1840 | 50.00 | 129.50 | 300.00 | 170.50 | 2000.00 | 0.85 |
| 1849 | 121.60 | 210.00 | 250.00 | 40.00 | 6000.00 | 0.07 |

Source: Shi, 从棉纺织业看清前期江南小农经济的变化，p. 79.

Note 1. The units of prices and volumes in the text were converted into their equivalents according to rates as follows: 1shi石=10 dou斗, 1liang两 (tael)=1000wen文, 1liang=10 qian钱=100 fen分. “liang (tael) 两”and “wen 文” were respectively the Chinese monetary units for uncoined silver money and copper cash in imperial and republic period. 1liang (tael)=1000-1300wen with variations in different regions and periods. “shi石” and “dou斗” were measure of volume for grain. 1shi=10 dou with local variations. “liang”, “qian”, “fen” were the weights of silver money in imperial China.

1. For the data in 1849, the price of native cloth was for “xiaobu 小布”, another kind of native cloth with smaller size.

Based on the price data provided by Xu (1992, 176)[[18]](#footnote-18), we estimate textile workers’ daily income between 1875 and 1920. Meanwhile, since 1880, imported yarn was largely introduced in Yangtze Delta for hand weaving, we therefore construct the data of women’s daily earnings by using mechanized cotton yarn for native cloth production (figure 1). Figure 1 shows that women’s daily income in traditional production was on a downward trajectory from the mid-eighteenth century to the mid-nineteenth century with a brief rebound between 1840 and 1875. The rising price of cotton and rice contributed to the declining remuneration of textile production in this period. From 1875 to 1910, women’s daily income on average was around 0.15 dou of rice, and again gradually decreased. On the other hand, where imported yarn was used in hand weaving, women’s daily remuneration dramatically increased, reaching a peak in 1890 (1.31 dou of rice). Although it tapered off afterwards, the average income remained much higher than in traditional production (hand-spinning and -weaving).

Figure 1. Women’s daily net income by two ways of cotton textile production：1756-1920

Source: for the day net income by traditional way (both hand spinning and hand weaving), Shi, 1987, p. 79. Xu, 1992, p. 176, table 2-15. For the day income by using mechanized (Indian) yarn, Xu, 1992, 177, table 2-16.

Note: 1. figure 1 includes Shi’s estimation between 1756 and 1849, but for the data in 1849, the price of cloth was for the native cloth with smaller size.

2.The traditional way of textile production here means that textile households still spun native yarn for hand weaving by themselves, this is the same as follows when we refer to the “traditional way”.

However, women’s real income in figure 1 was primarily based on the prices of the row cotton and cotton products (cotton yarn and cloth) every five years between 1875 and 1920. We collect price data in the consecutive years between 1867 and 1913 that was based on different sources, and attempt to enrich the range of the estimation on women’s textile income (though with some time overlaps with figure 1). In figure 2, the daily net income of hand weaving by using mechanized yarn between 1867 and 1913 was measured based on the prices of exported native cloth and imported yarn. From 1867 to 1894, we assume that producing one bolt of cloth entailed 1.3 workdays and this productivity improved to 1.5 bolts of cloth per day since 1895 (Xu, 1992, 216, 246).[[19]](#footnote-19) Such improvement in labor productivity was also confirmed by Li who asserted that textile labor productivity had doubled by the late nineteenth century (Li, 2009, 394). Furthermore, women’s daily remuneration from handicraft spinning and weaving during the period of 1912-1930 was also presented, which enabled a comparison of net incomes by two production ways under the impact of textile industrialization and global trade.

Figure 2. The day net income of textile women by two different production ways: 1867-1930

Source: the price of exported native cloth and imported yarn, see, Xu Xinwu 徐新吾 (1992) 江南土布史 (The History of Homespun Cloth in Jiangnan), pp. 106-113, 121-124. for the price data of machine-made yarn between 1914 and 1930, see, 中国旧海关史料: 1859-1948 (Historical Materials of China's Old Customs: 1859-1948), vol 67-109. The price of rice, see, Wang Yeh-chien (1992), “Secular Trends of Rice Prices in the Yangzi Delta, 1638–1935”, pp. 40-48. The price of exported cotton, see, Yu Xinjuan于新娟 (2010) 长江三角洲棉业外贸研究: 1912-1936 (Study on the Foreign Trade of Cotton Industry in Yangtze Delta: 1912- 1936), p. 134.

Notes: 1. 1 tael = 0.99 Haikwan tael = 1.10 Shanghai taels = 1.39 yuan, and 1 shi = 1.4 piculs = 0.926 shanghai shi (Wang Yeh-chien, 1992, 48). 1 Haikwan picul=1.2096 piculs (Xu, 1992, p.174).

2. the price data of imported yarn of 1869 was mistaken according to Xu, so we readjust it by consulting to Chinese customs data of 1869. see, 中国旧海关资料:1869-1871 (Historical Materials of China's Old Customs: 1869-1871).

1. for the specific curve of day income by traditional way of textile production, see figure 3 followed.

Figure 3. Day net income of textile production by traditional way: 1912-1930 (rice: dou)

Source: the same as the source of figure 2.

Note: This figure is a part of figure 2, we separately present the day income of traditional textile production between 1912-1930 in order to depict a clear income trajectory.

Figure 2 shows that the real earnings of Yangtze female weavers using mechanized yarn had a periodical rise and fall from the 1860s to the 1910s, yet the general trend was still downward. Particularly, hand weaving with machine-made yarn experienced an obvious wane into the early twentieth century. This was largely due to the shrunken price gap between mechanized yarn and native cloth. As several oral testimonies reflected: the price of one bolt of cloth increased from 0.6 yuan to 0.7 yuan between 1903 and 1915 in the Shanghai suburb Sanlintang, yet the imported yarn price rose from less than 0.30 yuan per catty to 0.32-0.33 yuan per catty. Around 1920, the price of imported yarn went up to around 0.6 yuan per catty, while the selling price of cloth remained between 0.7-0.8 yuan per bolt, barely covering its production cost (Xu, 1992, 294).

Textile households that began to use imported yarn for hand weaving had an average daily income of around 0.75 dou of rice between 1867 and 1913, far exceeding that of traditional production in this period. For instance, the real income per day by traditional way of textile production between 1875 and 1915 was merely 0.16 dou of rice (based on the data in figure 1). For those women who both spun and wove in the later period, their real income dropped sharply since 1920 (see figure 3), decreasing from the equivalent of 0.06 dou of rice in 1920 to 0.03 dou by 1930. Assuming that the basic consumption of rice for one adult was 3 dou per month, or 0.1 dou per day, we must conclude that the income from traditional textile production could not support one person’s subsistence.[[20]](#footnote-20) Rational households in this case would exclusively focus on hand weaving to maximize their textile income. As previously discussed, as Chinese consumption of machine-made yarn for hand weaving had increased to over 70% by 1913, this share must have been higher in the weaving districts of Yangtze Delta. One result of the introduction of machine-made yarn into household textile production was the enhancement of women’s earning power by producing homespun cloth.

In the early twentieth century, the development of the cotton textile industry offered Yangtze women factory positions in industrial cities such as Shanghai and Wuxi. The wage data of textile women in Shanghai cotton mills between 1920 and 1930 are depicted in Figure 4, in order to analyze the impact of industrialization on women’s earning power. The data are collected from statistical books and secondary literature. According to Figure 4, the average day wage of female textile labors was 0.39 dou of rice and sufficient to support three family members.[[21]](#footnote-21) Women’s daily remuneration was very high in the early 1920s, but dropped between 1922 and 1926. After the May Thirtieth Movement[[22]](#footnote-22) in 1925, a series of strikes resulted in higher textile wages, translating into real wages of 0.47 dou of rice in 1928. From 1928 to1930 women’s real income suffered a decline under the impact of the global economic crisis, but even in the low-remunerated year of 1930, the day wage could still support two people’s daily rice consumption. Urban textile jobs thus became an attractive option for (part of the) rural textile households when the returns from hand spinning and weaving increasingly diminished.

Figure 4. day wages of female workers in Shanghai cotton mills: 1920-1930 (rice: dou)

Source: The wage data between 1920 and 1925 is from 第一次中国劳动年鉴 (The first China Labor Yearbook)，pp. 59-65. the 1930 data is from "National Survey of Workers' Living and Industrial Production" in Compilation of social survey data during the Republic of China, Vol 21, p.43. The 1929 data is from 第二次中国劳动年鉴 (The Second China Labor Yearbook), p. 43. Gu Binyuan顾炳元 (1929), 上海的女工问题 (The Problems of Shanghai Women Workers), 女青年月刊, vol.8, no, 5, pp. 4-10. The data of 1928 refers to: 上海市地方协会 (Shanghai Local Association) (eds.) (1933), 上海市统计 (Shanghai Statistics), Shanghai: 上海商务印书馆, p.2. The data of 1926 is from: Liu Mingkui 刘明奎 (1985) 中国工人阶级历史状况: 1840-1949 (The Historical Situation of the Working Class in China：1840-1949). Beijing: 中共中央党校出版社, vol.1, p. 401. The price data of rice is collected from 上海物价资料汇编 (The Compilation of Shanghai Price Data)，appendix 8, p.120.

Based on women’s real income by different types of textile production in varied periods, we now attempt to construct their real earnings over a long run by synthesizing the income data that have been discussed in this section. The traditional handicraft textile production (both spinning and weaving) might have coexisted with weaving only with machine-made yarn. Similarly, hand weaving could persist at the same time when some women, particularly young skilled women, worked in modern textile industry.[[23]](#footnote-23) Therefore, we project al income series in a single graph (Figure 5). This allows us to compare women’s earning capacity in the different modes of production, and to comprehend the changes of textile women’s work through time.

According to figure 5, the traditional way of hand spinning and weaving earned the lowest income in most observed years. It shaped a large income gap to the way of hand weaving by using machine-made yarn. Even though this gap emerged in the second half of the nineteenth century as figure 5 indicates, Yangtze textile households had not extensively adopted machine-made yarn before the Sino-Japanese war of 1894.[[24]](#footnote-24) In fact, as figure 5 shows, from 1894 to 1917, the real income of textile women by adopting machine-made yarn for hand weaving, though experiencing a fluctuated decline, was still above 0.5 dou of rice per day, and enough to support the daily minimal grain consumption of a family of five. Since the early twentieth century, textile factory work became the most profitable among the three kinds of production. Hand weaving was increasingly unprofitable with the development the regional commercialization and industrialization. Nevertheless, women were still benefited in this historical process in light of that they were able to engage in better-remunerated works and entitled with more options to work. However, this benefit was conditional. First, women’s earning power was based on life circles. Age was one of key factors that limited women into one specific mode of production. For example, old women were primary labor force for hand spinning in their households, and little girls either spun at home as auxiliary labor force or worked in cotton mills with low wage. Women aged between 15 and 25 normally occupied a large proportion in Yangtze cotton factories, they were paid with higher wages compared to female child labors.[[25]](#footnote-25) Second, even though textile production was a low-skilled work, proficiency was still important in labor market. It was not surprised that Songjiang and Taicang women occupied Shanghai cotton mills with higher payment as they were more skilled (and seemed more literate) than the women in other Yangtze districts. Third, household labor allocation which was depended on local agricultural and industrial development restricted women’s job selection.[[26]](#footnote-26) Such conditions affected women’s working opportunity as well as their earning power.

Figure 5. Three day income series of Yangtze textile women between 1756 and 1930

Source: the data source in this chart is based on the sources of figure 1, figure 2 and figure 4.

Note: we have not included the extreme value (2.01) in 1876 for women’s day net income by using machine-made yarn to weave.

4. The economic role of textile women in Yangtze households

How many family members could a woman’s textile income support? The answer to this question, as Allen emphasized, depends on the time of assessment and the subsistence standard we adopt (Allen, 2009, 547). We utilize the income data in figure 5 to detect women’s household economic contribution in different production contexts, assuming that handicraft women worked 200 and female wage laborers 300 days per year.[[27]](#footnote-27) Women’s annual income was therefore their daily net income multiplied the total workdays in a year. As the income data was denoted by the equivalent of rice, we first need to find out the basic consumption of rice per household. The median household size was five with one adult couple, two children and an old parent. According to the available source (Fang, 1996), one agricultural wage labor could consume 0.15 dou of rice per day, women and old parents might need less (around 0.1 dou/day), and children ate much much less. The average day rice consumption of a family of five was around 0.5 dou, namely 0.1 dou per person on average. As our primary task is to detect women’s economic contribution to household subsistence, we only take a rough estimation on the total rice consumption of the household rather than the difference in the consumption amount of rice based on the age and gender of family members. In this sense, the minimal amount of rice for sustaining a whole family was thus 0.5 dou per day and 180 dou (18 shi) per year.

Based on women’s annual income and the annual household subsistence expense, we establish the economic contribution of female textile workers in figure 6. When women both spun and wove, their annual remuneration on average equaled about 10% of household subsistence costs during the investigated period. After 1910, this equivalent dropped below 6%, indicating that the traditional mode of production barely added value to the average household’s subsistence. Hand weaving with machine-made yarn, on the other hand, enabled women to enhance their economic role within the family. Women’s real income was much higher than that of the traditional way, although it was mostly below full household subsistence in most time years, implying that one Yangtze women could almost never support a standard family with her textile income. Such household economic contribution experienced a consistent decrease in the first three decades of the twentieth century. By the late 1920s, the contribution from hand weaving to household subsistence in most time points fell below 20% of the minimally needed income. Different from these handicraft textile women, women working in urban mills would be able to sustain 78% to 93% of minimum household needs in the early years of the 1920s. Although the fall in textile wages led to a declining earning power in some following years, women’s contribution still remained at an average level of around 53% between 1920 and 1930.[[28]](#footnote-28)

Figure 6. Women’s potential contribution to household subsistence by three ways of textile production: c. 1756 to 1930

Note: 1. we have not included the extreme value (434%) in 1876 for women’s economic contribution by using machine-made yarn to weave.

1. we use the annual income rather than day income because women were not engaged in textile production for 365 days in a year.

The comparison of real earnings between textile women and male agricultural laborers helps to comprehend women’s earning power and their family status. Li (1998) analyzed the difference in real incomes by female Yangtze textile workers and male farmhands in Ming-Qing period. According to Li, a long-term hired farm laborer earned an average wage equivalent to 0.31-0.36 dou of rice per day, assuming that they worked 360 days from the late seventeenth to mid-nineteenth century. The corresponding daily remuneration for a textile woman was between 0.17 and 0.38 dou of rice based on 200 days’ production. The daily textile income accounted for 82% of the day wage by agricultural work (Li, 1998, 149-150).[[29]](#footnote-29) It should be noted that Li’s estimation of daily earnings was based on the different workdays of men and women in a year and therefore could vary if annual workdays differed. This would also entail a fluctuation of the gender income gap. So, when we use these wage data to calculate annual earnings, women’s real income was only 57% of that male agricultural income in a year. However, if as what Li assumed elsewhere, a woman instead spun and wove for 240 days in a year and a male farmhand spent only 180 days for 10 mu of paddy land, then woman’s annual income would be equal to that of a male agricultural labor (Li, 1998, 150).

How did the gender wage gap develop since the early twentieth century? We collected the day wages of male agricultural labors and the price data of rice in Shanghai between 1912 and 1922, enabling an assessment of the earning capacity of male farmhands (see Figure 7). The daily returns from agricultural production were relatively stable in these years. Farmhands’ household economic contribution had a parallel trajectory, as rice prices were also steady. Their income only sufficed for an average of 46% of household subsistence in the observed period. Particularly after 1920, their earnings dropped below 40% and continue to decline to 30% of subsistence level in 1923.[[30]](#footnote-30) At the same time, female wage workers in modern cotton industry could contributed to more than 80% household welfare in the first years of the 1920s despite a fall afterwards. This all means that the male breadwinner model had far from established in rural China.[[31]](#footnote-31)

Figure 7. The day wages of male agricultural labors and their economic contribution to household welfare: 1912-1922

Source: 上海总商会月报(Monthly Report of Shanghai General Chamber of Commerce), 1924, vol. 4, no. 4. pp. 35-36.

Note: We assume that the workdays for a long-term hired farmhand in a year was around 300 days

In addition, some oral histories reflect the different contributions of agricultural men and handicraft textile women to their household living standard in the early 1910s. According to such sources, a female weaver in a Shanghai suburb produced 200 bolts of cloth in a year, and one bolt of cloth earned the net income equal to 0.32 dou of rice, worth about 0.2-0.3 yuan at the time.[[32]](#footnote-32) Therefore, a weaving woman could earn 64 dou of rice in a year and cover 36% household subsistence expense between 1911 and 1914. This contribution was not much lower than that of male farmhands (around 50%) in the same period. How about households in which the woman wove at home and the man worked in an urban factory? According to an oral testimony from 1920, a weaving woman produced 1.5 bolts of cloth per day with the net income of 0.45 dou of rice, while her husband working in a rice factory acquired the day wage equal to 0.14 dou of rice (Xu, 1992, 249).[[33]](#footnote-33) This particular husband’s urban wage seems on the low side, men working in industrial cities like Shanghai normally earned higher, for instance, textile men earned 0.7 dou of rice per day in the 1920s. Furthermore, in some particular textile industrial areas such as Nantong, both male and female textile workers conducted agricultural production in non-working time. This was because most Nantong cotton mills were established in countryside and their workers came from local villages. The combination of factory work and agriculture production enhanced household earning power. According to the investigation on Dasheng spinning factory in Nantong, during the 1920s and the early 1930s, a tenant household received the net income of about 30 dou of rice per year, its household labors, if assuming they worked in Dasheng factory, could earn 77 dou (for female member) or 115 dou (for male member) of rice per year.[[34]](#footnote-34) Supposing that one household had two adult labors (one male and one female) working in cotton mills, then their annual wage was just enough to support the whole family’s basic subsistence expense, the extra agricultural income ensured other kinds of household cost. The Nantong case shows that the achievement of household subsistence must rely on both male and female family labors.

5. Conclusion

The real income of Yangtze women by handicraft textile production experienced an overall decline between 1756 and 1930, but it followed a more complex development upon closer investigation. The day real incomes of women who spun and wove cloth at home experienced a steady decline from 0.2 dou fo rice in the mid-eighteenth century to 0.03 dou of rice by 1930. Such an income only reached an average of 10% household subsistence level in this period, much lower than their golden age of the seventeenth century.[[35]](#footnote-35) One major factor for the depression of traditional production was the competition from foreign cotton products. The machine-made yarn and cloth were imported into China since the mid-nineteenth century, which made hand spinning increasingly less rewarding. Nevertheless, textile households also benefited by substituting native yarn with cheap foreign yarn. The improved productivity of hand weaving and the low price of foreign yarn enabled Yangtze women to earn an average income around 0.59 dou of rice between 1867 and 1930, which far exceeded that of traditional production. The annual remuneration, by the new way of hand weaving, covered 65% of household subsistence expense. This period implied a short-lived prosperity of handicraft production. Since the 1920s, hand weaving stagnated under the competition of mechanized cloth. At the same time women acquired opportunities to work in urban mills, where they earned day wage equals to 0.39 dou of rice, averaging 64% of household subsistence cost.

The income trajectory of Yangtze textile women reveals three significant developments of textile production. The first period was the seventeenth century in which commercialization boosted the handicraft production of cotton products. Yangtze women gradually retreated from field work and exclusively engaged in textile manufacturing. Women’s economic contribution in this context was enhanced by the higher returns from hand spinning and weaving. Some skilled textile women even adopted a breadwinner role. The late nineteenth century witnessed the second turning point of household textile production. The invasion of foreign cotton products and the engagement of global trade pushed annual returns of traditional hand spinning and weaving below subsistence level. Yangtze women began to use foreign yarn for hand weaving, so as to maintain a high textile income between 1867 and 1917. Well into the 1920s, the development of textile industrialization in Yangtze Delta started the third important stage in which women obtained opportunities to work away home and to enhance their economic autonomy. In general, commercialization, global trade and industrialization in Yangtze Delta altogether contribute to women’s earning power over a long run. A certain group of women could support more than 40% of family subsistence budget by taking the relatively more profitable textile activities in our investigated period. But at the same time, these factors exerted a negative impact on other groups of women who were not able to enter into new remunerative modes of textile production, such as the old women conducting in hand spinning at home, or low-skilled/ illiterate adult women. Although the competition for well-remunerated works was conditional, the household economic contribution of Yangtze textile women should not be underestimated, as male wages were often also not sufficient to provide for the entire household.

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1. In the agrarian society, men were the primary labor force for agricultural works that constituted the major source of income for Chinese rural households, which led to the ignorance on women’s economic contribution. in addition, Confucian ethics and other social controls confined Chinese women in domestic production and undermined their economic importance (Goldstone, 1996; Buck, 1937). [↑](#footnote-ref-1)
2. Similar evidence was found in the silk-producing area of Guangdong, where women earned wages in silk filatures and enhanced their freedom to marriage. See, Topley (1975). [↑](#footnote-ref-2)
3. According to Li (1998, xvi), the mid-Qing period refers to 1736-1850, in this paper we take 1756 as the starting year for our analysis. [↑](#footnote-ref-3)
4. According to Li (1996), women both engaged in agriculture and cotton textile production before mid-Qing dynasty (1736-1850), this makes it difficult to calculate women’s overall income by agriculture and home production as there was no reliable data specifying women’s exact labor input in farming. In this respect, we focus on the period between the 1750s to the 1930s, the majority of this period witnessed a predominate engagement of household cotton textile production by women. Nevertheless, women definitely devoted much time in non-measurable household works or auxiliary farm jobs, but we skip this kind of labor input because of its difficulty of measurement. But still, household care and work played a role in comparing women’s opportunity cost in the decisions of migration or labor division. [↑](#footnote-ref-4)
5. In 1820, the size of arable land per capita was 1.2 mu (0.08 hectare) in Suzhou and Songjiang prefectures, barely to support a five-members farming household. Liang Fangzhong 梁方仲 (2008), 中国历代户口，田地，田赋统计 (Statistics of Household Registration, Land and Land Tax in China's Dynasties), Beijing: 中华书局, table 77, p. 556. [↑](#footnote-ref-5)
6. Songjiang was an advanced cotton textile center in Jiangsu during Qing and republican periods. [↑](#footnote-ref-6)
7. Ming period is from 1368 to 1644, but the cotton textile production in Yangtze Delta was prospered around the late Ming period, which is from 1573-1644. [↑](#footnote-ref-7)
8. Qing period is from 1644 to 1911. Early Qing: 1644-1735, Mid Qing: 1736-1850 and Late Qing: 1851-1911. [↑](#footnote-ref-8)
9. Li (1997, 13) assumed the average size of arable land per household in Songjiang prefecture in late-Ming period was 25 mu (1.67 hectares), and it reduced to 10 mu in Qing period in the Yangtze Delta. [↑](#footnote-ref-9)
10. Songjiang prefecture and Taicang were highly commercialized weaving centers in Yangtze Delta, their hand weaving industry was destroyed severely since the nineteenth century, hand spinners and weavers became employed in Shanghai cotton mills in large numbers. while for other hinterlands such as Nantong, household textile production was still active until the 1930s (Yan, 1955, 277-279). [↑](#footnote-ref-10)
11. Jiangqiao is a town in Jiading district in Shanghai nowadays. The cotton textile production was once very active in Jiading during Ming and Qing periods. [↑](#footnote-ref-11)
12. “jin 斤” was the measure of weight in China. 1 jin (catty) = 16 liang (tael) = 0.5 kilograms = 1.1 pounds. [↑](#footnote-ref-12)
13. In addition to shuttle loom, iron gear loom was also used in Yangtze Delta but not widespread due to its high price. [↑](#footnote-ref-13)
14. The process of ginning only took very little time in the whole procedures of textile production, see, Xu (1992, 216). [↑](#footnote-ref-14)
15. According to Shi (1987, 79), producing one bolt of native cloth required around 1.125 catty of ginned cotton, and the price of ginned cotton per catty was 2.303 times as much as that of raw cotton, so the production cost of one bolt (catty) of native cloth was the price of raw cotton per catty ×2.303×1.125. although the price ratios of raw cotton and ginned cotton fluctuated in Qing times, they were normally maintained around 2.30 to 2.76. [↑](#footnote-ref-15)
16. “shi 石” and “dou 斗” were the measure of volume for grain in China. 1shi=10 dou. shi was also used to denote a weight of approximately 156 jin. [↑](#footnote-ref-16)
17. Native cloth in the Yangtze Delta normally referred to the standard of “Dongxi 东稀布” , one bolt of standard native cloth was 1.31 feets wide, 21.87 feets long and 3.63 square yard. [↑](#footnote-ref-17)
18. Xu provided the price data of exported native cloth and ginned cotton as well as the price of rice in several time points between 1867 and 1920 in Shanghai. Based on these data, Xu estimated the net profits of producing one bolt of native cloth in a time series, which was close to Li’s claim that the return for the production of one bolt of cloth was around 1.1 dou of rice at the late nineteenth century (Li, 2009, 394). In our analysis, the women’s day income by traditional domestic textile production was speculated by dividing the net income of one bolt of cloth by 6 workdays. [↑](#footnote-ref-18)
19. According to Xu, textile households in Guangdong province required 1.3 days to produce one bolt of cloth around 1860, but the productivity in Yangtze Delta was not mentioned, we think Yangtze textile households as living in the most advanced weaving district at least had the similar productivity as Guangdong counterpart. furthermore, it is not clear when exactly the textile productivity was improved to 1.5 bolts per day, but according to Xu’s archives, it should be around the Sino- Japanese War of 1894, so we take 1895 as the starting year for the improved productivity. [↑](#footnote-ref-19)
20. The consumption amount of rice was from a folk proverb which was adopted by many scholars, see Fang Xing (1996, 92). [↑](#footnote-ref-20)
21. Although the day wage of each female worker could satisfy the daily rice consumption of three family members, it was unknown whether the annual income could support three persons’ grain consumption for a year in light of that female workers usually did not work 365 days each year. [↑](#footnote-ref-21)
22. The May Thirtieth Movement originated in the protest of Shanghai textile workers against the Japanese cotton mills that fired Chinese workers and undercut their wages. It then triggered a series of labor strikes and involved into an anti-imperialism mass movement in China. [↑](#footnote-ref-22)
23. Our working paper shows that women engaged in different ways of cotton textile production based on their age, marriage status and skills, and regional economic development might also affect women’s labor decision. for instance, young unmarried women with higher textile skill in Song-Tai district were most popular in Shanghai cotton mills, and many old women conducted hand weaving within household. see, Yu and Nederveen Meerkerk, “From Home Production to Modern Mills: Labor Allocation, Gender and Living Strategies of Chinese Peasant Households, ca. 1910s-1930s”, working paper, 2023. [↑](#footnote-ref-23)
24. The archive data showed that in 1894 about 77% homespun yarn were used for producing native cloth throughout China and in 1913 this proportion dropped to 28%, homespun yarn was primarily consumed for home use (Xu, 1992, 237). In Yangtze Delta, the adoption of foreign yarn for hand weaving might be earlier, according to Xu, Yangtze weaving household had used foreign yarn to produce homespun cloth for commercial purpose since 1895(Xu, 1992, 239). [↑](#footnote-ref-24)
25. Statistic data (Liu, 1985, 190-192; Fong, 1932, 116) shows that the number of textile workers aged between 15 and 25 was the largest in cotton mills. for instance, in Japanese spinning factories in Shanghai, workers aged between 16 and 25 accounted for about 56% of all workforce, and those workers whose age were beyond 31 accounted no more than 9%. The average age of spinning women was about 16 and 17 (Liu, 1985, 191). [↑](#footnote-ref-25)
26. For the gendered labor allocation in textile households and its impact on women’s work, see Walker (1993), Grove (1993), Yu and Nederveen Meerkerk’s working paper. [↑](#footnote-ref-26)
27. The weaving household normally worked 165 days around a year in Jiangsu province, and 265 days per year in the advanced weaving districts of Songjiang in particular. Each working day contained 12 working hours (Xu, 1992, 216). Based on Xu’s investigation, Li estimate that between the mid-eighteenth and the early twentieth century the average workdays of Yangtze textile women was around 200 days each year (Li, 1998, 150-151). For female wage labors, they normally worked 26 days per month, and we assume there were 12 days for festivals in a year, the total annual workdays could reach to 300 without considering the lockdown of cotton mills. [↑](#footnote-ref-27)
28. We assume an ideal situation in which female wage workers were fully employed for 300 workdays in a year, this might overestimate their annual income as well as their household economic contribution. Furthermore, the living costs of rural women and urban female workers were different, we therefore hesitate to make a direct comparison on their respective household economic contributions. [↑](#footnote-ref-28)
29. Li concluded that the daily return on women’s cloth production was about 75% of men’s daily agricultural income (Li, 1998, 150), but according Li’s data, we take an arithmetic mean of these two sets of figures and calculate women’s daily textile income was around 82% of men’s agricultural earning. [↑](#footnote-ref-29)
30. The wage data of farmhands in 1923 is not presented in the figure 7 as it was collected from other source. see, Zhang Youyi 章有义 (ed.) (2016) 中国近代农业史资料: 1912-1927 (Historical archives of Modern Chinese Agriculture: 1912-1927), Beijing: 科学出版社, vol. 2, pp. 456-457. According to the source, men’s agricultural wage was 26.49 yuan per year. [↑](#footnote-ref-30)
31. Of course, agricultural workers could also migrate to urban contexts to engage in well-remunerated works, such as industrial jobs, and they indeed were usually paid with higher wages than female counterparts even in the same industry. But such occupational change at the same time implied the disintegration of traditional household labor allocation (men ploughed and women wove), which is beyond our discussion. [↑](#footnote-ref-31)
32. The production amount of handicraft cloth and its net income are synthesized from several oral archives in Xu’s research (Xu, 1992, 242-245). 1shi=10dou=156 catty (jin). [↑](#footnote-ref-32)
33. According to the archive,the net income from one bolt of cloth was 4-5 catty of rice, and the month wage of this husband in a rice mill was 3 yuan, the price of rice at that time was around 0.05 yuan per catty, according to the rate ratio, 1shi=10 dou= 156 catty, so 1catty= 0.06 dou. Assuming the husband worked 26 days per month, we estimate his day income was 0.12 yuan that was equivalent to 0.14 dou of rice. [↑](#footnote-ref-33)
34. During the 1920s and 1930s, in Dasheng factory, the day wage of women workers was around 0.3 yuan and men workers received 0.45 yuan per day, normally 50% higher than female counterparts. The annual working days for Dasheng workers was 255, and we assume that the price of rice at that time was about 10 yuan per shi. see, Mu and Yan (1994), 大生纱厂工人生活调查:1899-1949 (The Investigation on Workers of Dasheng Spinning Factory:1899-1949), p. 184-201. [↑](#footnote-ref-34)
35. According to Li (1998, 149-150), women earned 0.38 dou of rice per day in the late seventeenth century. [↑](#footnote-ref-35)