Methodology: Approaches of Chinese History Population Estimation (1368-1953)

Shuji Cao

Shanghai JiaoTong University

Ⅰ.Standard Times Determination

1. Standard Times

- It is generally agreed that a nationwide population census was carried out during Ming Dynasty Hongwu years (1368-1398) according to Ping-Ti Ho's argument.
- Therefore, year 1391, when the census was taken can be confirmed as the first standard time, although this census is discovered problematic.
- Others standard times: 1776, 1850, 1880, 1910, 1953.

2. Mean Household Size

- Our studies showed that the region around capital such as the capital Nanjing, Zhejiang, Jiangxi, Fujian, etc, was observed more accurate original demographic data in the provincial administration units, with mean household size of 5.
- The majority of provincial administrative areas away from capital, had mean household size more than 6, the greater the distance, the greater the household size.
- The same trend was discovered evidently inside provincial areas, the greater the distance away from provincial capital, the more the household size within 6-10.

3. Sex Ratio

- Ping-Ti Ho quoted *the Records of Yongzhou Prefecture,* which compiled in 1381, that adult sex ratio was 109, children's was 162.
- Hence we can see that omission of "younger females" had become key factor to influence quality of population census early in Hongwu years (1368-1398).

4. Annual Population Growth Rate(1): the case of Fuzhou

- It is noticed that there were households 1,300,000, population 6,214,000 in Fujian in Yuan Dynasty, calculating mean household size 4.8. Households' number of Fuzhou prefecture was surprisingly large, accounting for 61% of the total 8 prefectures, as for population, that accounts for 62% of the whole 8 prefectures.
- However, both households and population decreased to 616,000 and 3,353,000 respectively in Qing Dynasty, when households and population of Fujian Province reached high of 3,150,000, 16,750,000. The decrease was unreasonable when the provincial data kept going up. The only reasonable explanation for the paradox is that households and population figures was exaggerated evidently.

4. Annual Population Growth Rate(2): the case of Fuzhou

- The exaggeration might be caused by frequent administrative shifts in Yuan Dynasty.
- We got the reliable figures of Fuzhou prefecture : households 149,000, population 768,000 by taking recorded figures of Fuzhou prefecture, minus by other 7 prefectures' figures of Fujian Province, and divide by 2.
- Then the ratio of households and population of Fuzhou prefecture to total 8 prefectures had become to19%, 20% respectively, which are similar to the percentage of Jiaqing years of Qing Dynasty(1795-1820).

5. Regional Population Proportion(1)

- The case of Fuzhou reminded us of the trend that population of different regions might follow the similar increasing speed without the influence of industrialization and natural disasters.
- That is, we can speculate the omission population figures based on the principle.

5. Regional Population Proportion(2)

- For example, the household and population figures of prefecture Anqing for year of 1820 recorded in *National Chorography of Jiaqing years*《嘉庆一统志》 are unavailable. In 1953, population figures of prefecture Anqing and Chizhou were 3,218,000 and 972,000, 77% and 23% of the total respectively.
- Population of the two prefectures was influenced a lot in the war of TaiPing Rebellion. Compared with Chizhou, Anqing's population recovered more quickly due to its opening pier, trade, and its position as provincial capital, so that its population percentage of year 1953 might be higher than that of prewar time.

5. Regional Population Proportion(3)

- In 1393, population figures of prefecture Anqing and Chizhou were 423,000 and 199,000, 67% and 33% of the total respectively.
- According to the proportion I speculated, Anqing's population figure for 1820 was 5,552,000 based on Chizhou's figure 2,755,000 in the percentage of 67:33 under the principle mentioned above.
- The population of Anqing for 1819 was 5,559,000 recorded in one local works《皖省志略》（*Chorography of Anhui Province*）which I neglected before.

Ⅱ.Estimation of Population Increasing Rate of Ming Dynasty

Population Increasing in the North

- Take prefecture Kaifeng in Henan province as an example. Population figure for 1391 was 1,183,000, and decreased to 1,133,000 in 1412, then increased to 2,047,000 in 1482, and decreased to 2,039,000 in 1552.
- The annual population growth rate over years between 1391 and 1482 was averaged 6‰ without taking data for 1412 and 1552 into consideration.
- After the sex ratio adjustment, the annual population growth rate modified over years between 1391 and 1482 was about 7.5‰.

Population Increasing in Nanjing

- Things are different in several regions, such as prefecture Fengyang, of which annual population rate was 5‰ or 3 ‰ from 1393 to 1587. And in prefecture Xuzhou, annual population rate was 6.9‰ for 1393-1491.
- Actually, the two prefectures, which were scarcely populated, were more part of northern region rather than the south.
- The annual population rate was about 3‰ for 1393-1578 in prefecture Luzhou, and the ratio was 3.7‰ for 1393-1491 in prefecture Anqing. The two prefectures are in the south.
- The population increasing speed varied considerably from the north to the south, even inside the province. However, the northern population rate is higher than the South.

Population Increasing in the South

- County Guihua of Fujian province was established in 1471, and its households and population figures for year 1472 were kept in 《汀州府志》（*Chorography of Tingzhou Prefecture*）, that is households 5,157, population 32,152, and mean household size 6.2 calculated.
- The figures then increased to households 5,588, population 34,015 in 1492, and household size 6.1 calculated. The annual growth rate over the two decades averaged 4‰.
- Based on records of local documents, Yongding county was established in 1481, and the annual growth rate of which over 1482-1492 averaged 3.9‰ .

The North and the south

- In a word, we set population increasing rate in the north at 4‰-8‰, which would be a little higher in regions where largely immigrants moved in. In the south, the ratio was about 3‰-4‰. Population of prefectures can be rebuilt based on the ratios.

Ⅲ.Population Increasing Rate of Qing Dynasty

- It is possible to discuss districted population increasing rate of Qing Dynasty out of abundance materials, which is different from conditions of Ming Dynasty.
- There are two ways for us to discuss population increasing rate of Qing Dynasty: Firstly, we began our work with determining standard time points' population in regions where population was influenced by wars in late Qing Dynasty. Secondly, in other regions, we sorted out annual growth rate of appropriate counties in a prefecture as the ratio of whole prefecture.

A Case of Sichuan Province

(no war region)

- G. William Skinner used to make good research about population recorded in *Sichuan Province Population Register*, and he convincingly emphasized that an amount of figures were falsified by government officials. Skinner made a deduction that population figures of Sichuan Province were basically true around 1812.
- I utilized 《乾隆民数册》(*Sichuan Province Population Register 1795)* which was not neglected by Skinner, and compared the recorded figures with that of 《四川通志》 (*chorography of Sichuan Province)* compiled in 1812,and other county's chorography, and 《嘉庆一统志》 (*the National Chorography of Jiaqing years).* Something different was discovered and help to reconstruct population of Sichuan Province by prefecture.

A case of Chongqing prefecture

- The four kinds of materials mentioned above, of which population figures were during the same period and at the same place, belonged to different systems.
- In chorography of Sichuan Province, records of counties Dingyuan, Bishan and Fuzhou were more reliable, with annual growth rate from 1812 to 1953 was 7‰. At same time, a considerable amount of counties growth rate reached high of 11‰.
- While, county population figures appeared to be much lower, and annual growth rate was higher. The reason might lie in that household and population figures recorded in county chorography were only part of the population (Liang Hu), but not the whole (Yan Hu).
- I go backwards in time from 1953 to reconstruct the population for 1820 according to the annual growth rate 7‰, and go on stretching back to 1776 according to the annual growth rate 8‰.

Ⅳ.Conclusion

- When estimating annual growth rate of Ming Dynasty, I usually substituted point data for wide region, which is relatively rough. Somewhat differently, I estimated the rate of Qing Dynasty by prefectures, which is more accurate.
- Therefore, there are only annual growth rate by each prefecture estimated in Qing Dynasty, without the rate of nationwide or by south or north.

Appendix

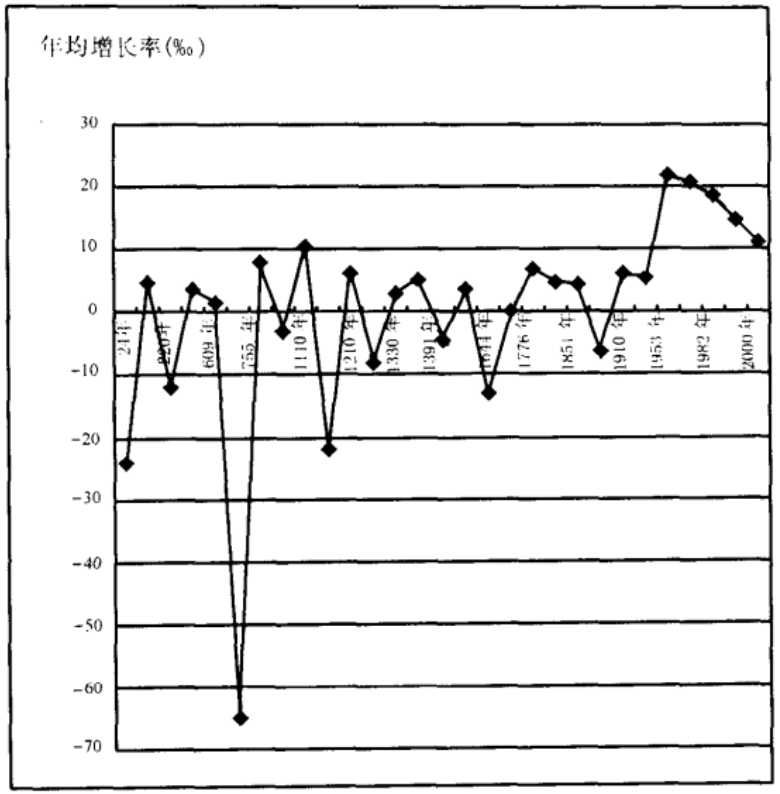

图 19－2　中国人口增长速度的变化

Figure 1 Population Increasing Rate of China Changing in Periods

表 16－3　1776 年至 1953 年分省人口年平均增长率(‰)

省　区	1776—1819 年	1820—1850 年	1851—1879 年	1880—1909 年	1910—1953 年
江　苏	4.45	4.06	−14.25	3.09	8.97
安　徽	4.90	4.96	−19.07	5.47	4.52
浙　江	4.57	3.30	−21.69	4.77	4.91
江　西	3.96	2.69	−20.51	3.89	2.44
湖　南	4.98	4.49	1.09	5.22	5.43
湖　北	4.24	4.20	−5.39	5.08	5.08
福　建	4.17	3.45	−8.99	2.94	6.83
广　东	3.39	3.51	3.56	3.60	3.66
广　西	4.80	4.76	4.79	4.79	4.83
云　南	6.09	6.72	−2.92	4.86	6.28
贵　州	6.30	5.24	5.31	5.39	5.48
四　川	7.71	7.23	7.37	7.51	8.30
直　隶	5.92	5.14	5.35	5.58	5.93
河　南	3.92	3.64	−5.51	5.69	7.70
山　东	3.35	3.10	3.15	3.96	2.70
山　西	3.56	3.21	−19.96	9.91	7.28
陕　西	9.61	2.89	−21.45	10.03	11.84
甘　肃	2.46	2.45	−45.27	12.35	15.90
新　疆	5.66	6.79	0.73	14.89	18.46
辽　东	24.33	12.50	15.99	32.56	12.88
吉　林	15.04	25.51	25.49	25.56	16.96
黑龙江	10.09	25.80	25.82	25.78	46.82
青　海	1.57	1.47	1.61	1.49	1.51
西　藏	0.98	1.09	1.08	1.09	1.07
内蒙古	4.80	4.79	4.80	4.55	4.55
外蒙古	1.38				
合　计	4.72	4.19	−6.17	6.00	7.00

资料来源：据本卷表 16－2 计算。

Table 1 Average Increasing Rate by Provinces in 1776-1953

THANK YOU