CGEH Working Paper Series

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January 2015

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Abstract: This paper presents new estimates of the development of the urban population and the urbanization ratio for the period spanning the Song and late Qing dynasties. Urbanization is viewed, as in much of the economic historical literature on the topic, as an indirect indicator of economic development and structural change. The development of the urban system can therefore tell us a lot about long-term trends in the Chinese economy between 1100 and 1900. During the Song the level of urbanization was high, also by international standards – the capital cities of the Song were probably the largest cities in the world. This remained so until the late Ming, but during the Qing there was a downward trend in the level of urbanization from 11–12% to 7% in the late 18th century, a level at which it remained until the early 1900s. In our paper we analyse the role that socio–political and economic causes played in this decline, such as the changing character of the Chinese state, the limited impact of overseas trade on the urban system, and the apparent absence of the dynamic economic effects that were characteristic for the European urban system.

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1. Introduction

The urban structure and growth of a country is an important source of information about its economic development, in particular when other sources of information are scarce. Data on the size of cities and estimates of urbanization ratios can tell us a lot about the growth of non-agricultural activities and, indirectly, also about the evolution of agricultural productivity (proxied by the number of non-agricultural mouths fed by the primary sector). Divergent paths of long-term economic development usually result in divergent urban systems, as, for example, the contrasting experiences of Western Europe and the Arab world between 800 and 1800 demonstrate (see Bosker et al., 2013). Our paper contributes from this perspective to the debate about the nature of the evolution of the Chinese economy in the 800 years spanning the Song and the late Qing dynasties.

Briefly, this debate is dominated by two 'extreme' interpretations. The first argues that the Chinese economy peaked during the Song (960-1279) followed by long-term decline, reaching its nadir some time during the late Qing. The second suggests that there were important phases of economic expansion after the Song, such as the commercial revolution of the Ming and early Qing dynasties, and that in particular growth in the economic centre of the empire, the Yangtze Delta, continued until the late 18th and perhaps even the early 19th century. The former interpretation, stressing the Song peak, was until recently the orthodox position, associated with the work by Elvin (1973) and Jones (1988). This view was, however, not always shared by others (e.g. Twitchett, 1962) and, more recently, has come under attack in publications by Bozhong Li (2000, 2010) and others who have replaced the orthodox view with a more optimistic interpretation of long-term growth, often based on research focused on the Yangtze Delta. [1] This has also helped to underpin the positive interpretation of 18th century development as expressed by Pomeranz (2000) and Rosenthal and Bin Wong (2011) in their contributions to the 'Great Divergence' debate. Nevertheless, the 'Song-as-peak' interpretation is not dead, as is clear from a number of recent publications that arrive at conclusions consistent with this hypothesis (e.g. Liu, 2005).

It is surprising that in the recent revival of economic historical research into the long-term development of the Chinese economy, the level of urbanization has not played a major role. Whereas urbanization is often referred to in the literature as a proxy for economic development in European contexts, a similar approach is absent in the Great Divergence debate. It is not discussed in Pomeranz' (2000) book on the topic, which does not even include entries in its index on 'cities' or 'urbanization', nor has it been extensively researched and discussed by other participants in the debate. From the European perspective this seems strange: urbanization has been used in this case as a proxy of economic growth, for two reasons. Firstly, it requires that agricultural productivity increases to supply the needs of the growing share of the population living in cities, and, secondly, it reflects the growth and spatial concentration of high value-added activities in industry and services, which are often seen as the engines of productivity growth in an early modern economy. In the European case, the correlation between urbanization and economic growth is therefore quite strong, but, of course, this may be different in other cases – depending very much on the question as to whether city growth was based on 'extractive' or 'inclusive' institutions (or, to use Weber's typology, whether cities were consumer cities or producer cities) (Acemoglu and Robinson, 2012). In the Middle East, for example, the high level of urbanization achieved in the 8th/9th centuries did not guarantee long-term economic growth (Bosker et.al., 2014).

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[1] According to Bozhong Li's definition, as an economic integrated region, the lower Yangtze Delta roughly covered 7 *fus* (prefectures) in Song dynasty(i.e. *linan fu, jiaxing fu, pingjiang fu,Zhenjiang fu,anji zhou,Changzhou and jiankang fu*), 7 *lus* (prefectures) in Yuan dynasty (i.e. *Hangzhou lu, jiaxing lu, huzhou lu, pingjiang lu, Changzhou lu, zhangjiang lu and jiqing lu*) and 9 prefectures in Ming and Qing dynasties (i.e. *Suzhou fu, songjiang fu, Changzhou fu, zhengjiang fu, fu, ta icang zhou, Hangzhou fu, jiaxing fu and huzhou fu*).(Bozhong Li, 2003)

This issue has also been raised in some recent works that specifically look at urbanization in China and Europe. For example, Broadberry and Gupta (2006, p. 21) show that urbanization in Northwestern Europe was substantially higher than in both China as a whole and the Yangtze Delta. Likewise, Rosenthal and Wong (2011) attach value to the existence of cities for economic development, suggesting that Europe was in a much better position than China. However, neither study goes deeply into the long-run developments of urbanization, nor do they consider that the relation between urbanization and economic growth may be different in China from that in Europe. One researcher who does discuss this point is Skinner (1977) claiming that city sizes declined during the Ming dynasty because more small markets emerged that reduced transportation costs. We will return to the theme of the 'rise of small market towns' later in this paper.

Our study adds to this body of literature by presenting detailed estimates of the development of the urbanization ratio based on state of the art data of the sizes of cities and of the population of various provinces and regions for a number of benchmark years, the choice of which is largely dictated by the availability of sources, although coincidentally they nicely cover the dynasties involved. Another benchmark around 1500 would have been valuable to study the effects of the early Ming and the commercial revolution that followed in the 16th century, but the data are lacking for this. Based on the available data, we chose two benchmarks during the Song (1102, 1205), one during the Yuan (1291), two during the Ming (1391 and 1630), and four during Qing (1644, 1776, 1851, and 1894) and one for early Republic China (1918). The data for these benchmark years allow us to analyse the dynamics of urbanization process in more detail and make systematic comparisons with Western Europe.

In our paper we begin in Section 3 by presenting the data underlying our estimates of the growth of the urban system. We find that, in particular during the Qing, the rate of urbanization fell, a result that is not entirely new. In fact, most alternative estimates point in the same direction. Chao's book on *Man and Land in Chinese History* probably presents the best overview, concluding that urbanization ratio declined from 21% in 1220 to 6.9% in 1820 (Chao, 1986, p. 60). The classic study by Skinner (1977) on urbanization in the 19th century did not contain estimates for earlier periods, but he did chart its long term development: after the medieval Urban Revolution (pp. 23-26) followed 'devolution' caused 'by declining stimulus to city development provided by foreign trade and by technological advance' (p. 29), a view consistent with our findings. However, Rozman's (1973) study of the structure of the urban system in Japan and China has estimates, which suggest stability of the rate of urbanization, which he sets at 4-5% during the Tang dynasty, 5% during the Song, and 6-7% in Ming and early Qing. But the basis for his estimates remains rather unclear. These estimates are followed, in Section 3, by an analysis of the factors contributing to the long-run decline in urbanization we find over the Song–Qing period.

2. Chinese urbanization from 1100–1900 : data and sources

Introduction

Before entering into a discussion on sources and data, we must first define what we are actually measuring when, in the case of China, we talk about cities. First, in contrast to Europe, where cities were clearly defined both in legal and geographical terms, in China this was not the case. Sometimes Chinese cities had city walls, often established before the Song dynasty, but from the Song onward many of these cities expanded well beyond their walls. Hence, it is often unclear what part of the population inhabiting the land surrounding a city's walls has to be added to the urban population, especially from the Yuan dynasty onwards. Moreover, in China, unlike Europe, no legal designation of the city as a separate entity existed. Originally, in China cities were built for, and served as, administrative and military centres. Consequently, Chinese cities are classified by

their role in the government administration. First there was the core city during a dynasty: the dynasty's capital city. During the Northern Song the city of Kaifeng was the capital. This changed to Hangzhou during the Southern Song, with Beijing being the capital of the contemporary and competing Jin dynasty, later to be replaced by Kaifeng when the Yuan dynasty captured Beijing; eventually the whole of China was ruled by the Yuan dynasty.

Provincial cities, serving the provincial administration, formed the second level in the urban hierarchy. A third level of urban concentration was linked to the administrative unit of the prefecture, while a fourth and final level belonged to centres responsible for county administration. With the expansion of the territory of imperial China, this urban structure with its clear administrative function spread to the newly incorporated areas. In addition to these mainly administrative cities, market towns arose during the Song dynasty; often markets were located in the administrative cities, but sometimes also in rural towns. These mostly relatively small towns were considered to be urban without, however, having the administrative or defensive functions of the administrative cities.

A second issue to be resolved in research on urbanization is how big the concentration of people within a city should be before it qualifies as urban. In most studies by Chinese authors, a level of 2,000 inhabitants is used as the lower limit, which was first used in the 1953 Chinese census to characterize a residential area as a city.[2] This threshold is much lower than the 5,000 or 10,000 used in European studies on the topic. In our study we address this divergence by estimating Chinese urbanization both for cities with more than 2,000 inhabitants and for cities with more than 10,000 inhabitants, thus allowing comparisons with existing European studies.

A third issue to be resolved is that the territory of the Chinese state changed considerably between the 12th and the 20th centuries. The Northern Song covered most of what is now eastern China, while the Southern Song was limited to a part of south-eastern China. In addition, for most periods up to the Qing dynasty, the regions of Xinjiang and Manchuria are not included in China, as are, obviously, Tibet and Taiwan. Hence, any research into Chinese urbanization has to deal with territorial fluctuations. Since the total and urban populations of these new territories were rather low, we deal with this issue by focusing on 17 'core' provinces (i.e. Hebei, Shangdong, Henan, Shanxi, Shaanxi, Gansu, Jiangsu, Zhejiang, Anhui, Jiangxi, Huguang[3], Sichuan, Guangdong, Guangxi, Yunnan and Guizhou), which during the Qing dynasty were referred to as Inner China. Nevertheless, in addition we also present estimates for the new territories outside this region.

The estimation of historical populations and levels of urbanization in China involves solving these three issues. The other side of the coin, however, is that China was probably the first empire to start counting its inhabitants in a systematic way, and in doing so has produced a wealth of population censuses unmatched by any other state. The Zhou dynasty was the first to start a country-wide population investigation. Unfortunately the results of this census, which spanned the period from ca. 828 to 782 BC, no longer exist. The oldest existing census data are those from the Han dynasty, which were recorded in *Hanshu* and written by the famous historian *Bangu*. For the period under review in our study we have detailed census data for the total population in each dynasty. Population surveys were generally conducted every three years during the Song dynasty and every ten years from the Ming dynasty onwards; the results were reported in government archives, official histories, and, for local areas, in gazetteers. In these surveys, actual households (and sometimes population) were registered by city, suburban and rural areas separately. From the Song dynasty onwards, the administrative cities (i.e. capital, provincial, prefectural, and county cities) were formally classified as cities, but market towns were classified as being

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[2] Gilbert Rozman (1973) is in this case an exception: he used 3,000 inhabitants as the lower limit.

[3] Although Huguang province was divided into Hunan and Hubei provinces during the Qing dynasty, we consider Huguang as one single province.

suburban. Hence, both the suburban and the urban categories qualify as urban settlements in the modern sense of the word.

In recent years these censuses have been analysed and standardized by a group of Chinese scholars at Fudan University in order to achieve a consistent overview of the development of the Chinese population. In general, the quality of these censuses is much better at the beginning of a dynasty, when the state's power is relatively strong; their quality often deteriorated in the late phases of a dynasty. Scholars therefore depend heavily on census estimates for the early years of a dynasty, which are complemented, especially during later phases, with traveller's reports scattered throughout private publications. These record non-registered urban populations, as well as indirect data on the number of urban people based on levels of consumption, lengths of city wall, revenues from trade taxes, etc. Scholars at Fudan University have collected and processed all this information. Their impressive work can be found in Ge Jianxiong's (2002）study on the population history from Pre-Qin dynasties to the northern and southern dynasties (i.e. B.C. 2100-589 A.D.), Dong Guodong's research（2002）on the Five Dynasties from Sui to Tang (i.e. 589-960); Wu Songdi's (2000) study dealing with the period from the Northern Song dynasty to the Yuan dynasty (i.e. 960~1368), Cao Shuji's (2000, 2001）books focusing on the Ming and Qing dynasties (i.e. 1368~1911), and Hou Yangfang's (2001) volume on the Republic of China (i.e. 1912~1949). The estimates presented below are mainly based on these current 'state-of-the-art' works by these authors, which contain the most reliable estimates available.

Total population 1102–1918

To start our exploration we looked at the – presumably – less controversial issue of total population (see Table 1). These data were drawn from the series of books on Chinese population history mentioned above. The territories covered in these sources has changed over time. However, as we have pointed out in the previous section, we will focus on the 17 provinces of Inner China.

For the Yuan dynasty and later, when China was more or less unified, getting an estimate of the population of Inner China boils down to subtracting the peripheral provinces from the total. For the Republican period in 1918, this means that we should subtract from Hou's population estimate for China as a whole a number of 27.8 million people living in Mongolia, Manchuria, Qinghai and Tibet (Hou, 2001). For 1776, 1854, and 1893 we can simply subtract the populations for these same regions including, for those years, the population of Taiwan, which was part of the territory at that time, taken from Cao (2001). For the Ming dynasty in 1630 and 1644, we have to subtract 7 million people living in Mongolia, Manchuria, Tibet and Taiwan (Cao, 2001). For the Yuan dynasty in 1291 we should subtract 2.4 million people living in Mongolia, Manchuria and Tibet from Wu's estimate of 75 million in order to arrive at an estimate for Inner China (Wu, 2001),

Table 1

Population in China 1102-1918, (millions)

	1102	1205	1291	1391	1630	1644	1776	1851	1893	1918
Hebei (including Rehe, Beijing, Tianjin and Baoding)				2.94	10.95	7.30	17.80	27.06	33.96	
Shaanxi				2.97	10.00	6.20	7.97	13.27	8.06	
Shanxi				4.24	9.50	7.40	12.26	15.84	10.04	
Shandong				6.11	14.82	13.08	27.90	35.59	41.00	
Henan				3.16	16.73	8.20	23.15	30.77	28.23	
Jiansu (including Shanghai)				12.49	31.00	27.12	32.44	44.72	31.00	
Zhejiang				11.14	23.60	19.90	22.37	30.28	17.05	
Fujian (excluding Taiwan)				3.97	8.80	8.80	12.88	16.21	11.90	
Jiangxi				8.12	19.30	19.30	18.78	24.29	14.00	
Huguang (including Hunan and Hubei)				4.83	15.00	13.20	31.43	44.00	44.35	
Guangdong				3.85	7.80	7.80	18.45	23.86	27.71	
Sichuan				1.47	7.35	0.50	16.81	29.47	40.18	
Anhui							25.86	37.39	22.97	
Guangxi				1.57	3.50	3.50	7.66	10.96	13.40	
Guizou					2.50	2.50	5.67	8.79	11.00	
Yunnan					2.40	2.40	7.88	12.68	12.40	
Gansu							15.80	18.99	5.81	
Inner China	**108.62**	**138.72**	**72.60**	**68.72**	**183.38**	**144.59**	**305.10**	**424.14**	**373.06**	**395.20**
Yangtze Delta		9.13	8.30	8.70	19.58	16.84	24.83	36.00	15.67	
Xinjiang and Qinghai	1.50	1.50					1.14	1.68	2.18	
Mongolia and Manchuria	3.60	3.60	1.84	2.90	5.60	5.60	3.19	6.85	18.47	
Tibet			0.56	1.00	1.30	1.30	1.14	1.23	1.14	
Taiwan				0.10	0.10	0.10	0.90	2.20	2.82	
China in Qing territory	**113.72**	**143.82**	**75.00**	**72.72**	**190.38**	**151.59**	**310.57**	**436.09**	**397.66**	

Sources: Wu Songdi (2000), *China's population history*(《中国人口史》), volume 3; Cao Shuji (2000), *China's population history*(《中国人口史》), volume 4; Cao Shuji (2001), *China's population history*(《中国人口史》), volume 5; Hou Yangfang(2001), *China's population history* (《中国人口史》), volume 6, Shanghai: Fudan University press.

and for 1391 we should subtract 4 million people living in Mongolia, Manchuria, Tibet and Taiwan from Cao's estimate of 72.72 million (Cao, 2001) .

The calculation of the population in Inner China during the Song dynasty is more complicated since several competing dynasties were simultaneously in existence on its territory. In 1102, China was split into 4 dynasties: the Northern Song, Liao, Xixia and Dali dynasties. At that time Inner China was roughly equal in territory to the Northern Song, with parts of Hebei and Shanxi province occupied by the Liao dynasty, Gansu province and part of Shaanxi province were occupied by the Xixia dynasty, and Yunnan province was occupied by the Dali dynasty. The Northern Song reached a population of 98.93 million around 1102. To this number we thus have to add ca. 5.4 million people living in parts of Hebei and Shanxi province in the Liao dynasty (Wu,

2000) and about 1.5 million people in Gansu province and part of Shaanxi province in Xixia dynasty. This leaves the population of Yunnan. Based on an annual population growth rate of 0.4% and a population of 5 million in 1300 (Wu 2000) we arrive at a population estimate of 2.8 million in Yunnan in 1102 implying a total population of Inner China of ca. 108 million people.

A similar calculation can be made for 1205. The Southern Song reached a population of ca. 80.6 million in 1205 while the Jin dynasty, excluding ca. 3 million people living in Manchuria, had a population of 53 million (Wu 2000). Due to lack of census data, we have to assume Gansu province and part of Shaanxi province in the Xijia dynasty in 1205 had the same population as in 1102. This assumption is reasonable since the war among the Xia, Jin and Northern Song dynasties in the late 12th century affected the population growth in Xia territories. Similarly due to lack of census data, we lack data for Yunnan. Yet, assuming a 0.4% annual population growth as well as a total population of Yunnan in 1300 of 5 million (Wu 2000), we can arrive at a population estimate of 3.62 million for Yunnan in 1205. These estimates combined lead to a population of Inner China in 1205 of ca. 139 million people.

The resulting population totals for the various benchmark years are reported in Table 1. We witness over-all population growth in Inner China from about 100 million in 1100 to 400 million at about 1900. The share of the Lower Yangtze Delta of Inner China increased from 6.5% in 1205 to 12.6% in 1391, just after the Yuan dynasty. In the early Ming, it remained constant, but its share started to decline in the Qing dynasty, especially after the Taiping rebellion, followed by a fast increase in share Yangtze in Inner China between 1894 and 1918 along with the rise of the big metropolis Shanghai.

The quadrupling of the population of China was probably much less than population growth in the rest of the world, which, if we are to believe Angus Maddison's (2003) estimates, increased from about 250 million to almost 1.2 billion. Part of the explanation as to why China saw its share in global population decline is that China underwent a number of large and sometimes violent changes. During the Song dynasty there was strong growth of the population from 100 million in 1100 to 125 million in 1200, followed by a very dramatic decline to about half that level – probably due to the collapse of the Song dynasty and conquest by the Mongols, as well as the Black Death. During the Yuan and early Ming dynasties no recovery had yet taken place (total population in 1391 was similar to that of 1291). By the end of the Ming, in 1630, the population had, however, increased spectacularly to almost three times the 1291 level. However the Ming–Qing transition, a period of violent conquest, lead once more to a sudden decline – in 1644 the Chinese population was only about 80% of its 1630 level. During the Qing dynasty growth resumed and the two centuries after 1644 saw the total population almost triple, only to be followed by modest decline in the second half of the 19th century (mainly due to the Taiping rebellion of the middle decades of that century). When compared this with the population record of Western Europe (defined as the region west of the famous Hajnal-line, from Triest to Petersburg), we see a much more gradual growth, only once interrupted between 1300 and 1400 – by the Black Death (see data in Bosker et al., 2013). Steep declines in Chinese population levels are linked to transitions from one dynasty to another, and/or to large-scale social–political unrest, in particular the Taiping rebellion occurring in mid-19th century. Comparable declines in European populations did occur –during the Thirty Years war (1618-1648), for example, large parts of Germany and Poland were depopulated – but on a much more limited scale, due to the smaller size of European political entities. And the decline of German population also resulted (via migration flows) in increased growth in neighboring regions, compensating for the decline in Germany. In Europe the risks of warfare were spread, although warfare was almost continuous. By contrast, in China warfare was highly concentrated, linked to changes in dynasties, but it seems to have had much larger consequences for the demographic development of the region.

Urban population: 1776–1918

The population estimates given in the previous Section, difficult as they may be to construct, are still easier to obtain than estimates of urbanization. For this reason we start in this Section with the most recent estimates, for which the margins of error are probably rather small, and work backwards to our earliest benchmark years, for the Song.

In 1918 the National Christian Council of China conducted a country-wide survey of the urban population in China. The survey covered 338 cities with populations of more than 25,000 inhabitants and for which the urban population accounted for at least 8% of the total population (see Table 2 and Appendix 1). Given that in other years the urban population in cities larger than 25,000 inhabitants accounted for approximately 60% of the total urban population[4], total urbanization for the whole country can be estimated at about 13%.

To estimate the size of the urban population in the Qing dynasty, both Skinner and Cao set up a relatively complete dataset for the whole country within its historical borders (Skinner, 1977; Cao, 2001). Skinner's dataset contains estimates of national and regional urban populations in 1843 and 1893, as well as providing estimates for a large number of individual cities for the same years. Cao's dataset includes estimates of China's urbanization for 1776 and 1893, as well as for separate provinces and a limited number of estimates for individual cities. Yet, ultimately the differences between the estimates of these two authors are small: Skinner estimates urbanization at about 6% while Cao puts it at around 7%.

Table 2

Urban population by city size in 1918

Cities	Number of cites	Urban population
Cities > = 500,000 inhabitants	10	8,275,000
Cities of 110,000–480,000 inhabitants	40	8,591,537
Cites of 50,000–100,000 inhabitants	121	8,494,000
Cites of 25,000–45,000 inhabitants	167	5,486,100
Total of urban population	338	30,846,637
Total population of Inner China		395,200,000

Sources: National Christian Council of China edited (2007), *Chinese Christian survey in 1901–1920*（《中国基督教调查资料：1901–1920》），Beijing: China Social Sciences Press, Appendix 7 'table of estimate of urban population in China'.

Nevertheless, we consider the recent work by Cao to be more reliable than Skinner's older dataset. Cao (2001) extensively discussed his sources, which are often actual censuses. Skinner

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[4] Our assumption is derived from both Cao's (2000) estimate for 1893 and Buck's (1933) investigation for 1933.

claimed his estimates were based on 2500 cards of data he collected during his studies, but he did not reveal the sources. As he explained, he often used indirect methods (e.g. length of city walls), whereas Cao (2001) had access to much more historical data. Despite this we have had to make a few modifications to Cao's estimates for 1893 and 1776. First, we modified Cao's estimate of 500,000 inhabitants for Suzhou by applying the more recent estimates of 1 million inhabitants from Wang Weiping (1999) and Li Bozhong (2003). Second, Liu Shiji (1987) and Fan Shuzhi (1990) supplied more estimates for market towns in the Yangtze Delta. Based on Cao, Liu, Fan and Li, we built up the Qing part of our dataset both for cities (including market towns) exceeding 2,000 inhabitants and for cities larger than 10,000 people in the Yangtze Delta and in the Inner China.

Since Skinner's estimate for 1843 is difficult to rely on and Cao does not provide a benchmark for that year, we still needed to supplement the estimates for the mid-19th century. Due to data limitations, we were only able to obtain estimates for Shangdong, Hebei, Shaanxi, and Guizhou provinces in 1850. Our approach for estimating these four provinces was: (1) based on the census reported in the gazetteers of these four provinces, combined with other existing research of the mid-19th century, we derived the average urban population for each type of city (the typology was taken from Cao's (2001) subdivision for 1776);(2) combining the average urban population in each type of city with the number of cities, we calculated the total urban population in each of these four provinces (see Table 3). Combined with an urbanization estimate of 20% for the Lower

Table 3

Urbanization in Shandong, Hebei, Shaanxi and Guizhou in 1850

	Shandong		Hebei		Shaanxi		Guizhou	
	no. of cities	population	no. of cities	population	no. of cities	population	no. of cities	population
Provincial capital city	1	62,500	1	1,063,000	1	65,000	1	60,000
Large prefecture city and large market town	8	691,500	11	527,000	4	120,000	1	50,000
Normal prefecture city and large county city	11	165,000	6	90,000			4	48,000
Normal county city and normal market town	98	588,000	114	684,000	9	135,000	33	148,500
Small market town	96	288,000	87	261,000	80	480,000	3	9,000
All cities and population	214	1,795,000	219	2,625,000	94	800,000	42	315,500
Total population		35,585,000		27,055,000		13, 269, 000		8,794,000
Urbanization ratio		5.0%		9.7%		6.0%		3.6%

Sources: Shangdong estimate: Xu (1998), Cao (2001), Chandler, Tertius and Gerald Fox (1974) and three local gazetteers，such as *Daoguang Donge xianzhi*（道光《东阿县志》）, *Daoguang Shanghe xianzhi* (道光《商河县志》),*Daoguang Jiaozhouzhi*(道光《胶州志》)

Hebei estimate: Han (1996), Cao (2001), and 2 local gazetteers, such as *Mingguo Qingyuan xianzhi*(民国《清苑县 》),*DaoguangJimmen Baojia Tushuo(*道光《津门保甲图说》*)*

Shaanxi estimate: Cao(2001), and 4 local gazetteers, such as *Daoguang Qinjiang Zhilue*(道光《秦疆治略》), *Guangxu lantian Xianzhi*(光绪《蓝田县志》), *Daoguang Anding Xianzhi*(道光《安定县志》), *Daoguang Shiquan Xianzhi*(道光《石泉县志》)

Guizhou estimate: Cao(2001), and 3 local gazetteers, such as *Daoguang Guiyang Fuzhi*(道光《贵阳府志》), *Daoguang Zunyi Fuzhi*(道光《遵义府志》), *Daoguang Dading Fuzhi*(道光《大定府志》) and Chandler and Fox (1974).

Yangtze Delta from Li Bozhong (2000), these data allow us, by weighting by population size, to put the level of urbanization around 1850 at 6.5% (5.5% for China outside the Lower Yangtze Delta).

Levels of urbanization for the Qing and Republican China are reported in Table 4, which shows stability between 1776 and 1893 for Inner China but some decline in the two most

Table 4

Urbanization by province 1776-1918 (%)

	1776	1851	1893	1918
Hebei (including Rehe,Beijing,Tianjin and Baoding)	13		8	
Shaanxi	5		7	
Shanxi	10	10	9	
Shandong	5	5	3	
Henan	5	4	5	
Jiangsu (including Shanghai)	14		14	
Zhejiang	10		14	
Fujian	6		7	
Jiangxi	8		7	
Huguang(including Hunan and Hubei)	6		6	
Guangdong	8		8	
Sichuan	7		7	
Anhui	5		5	
Gansu	3		5	
Guangxi	5		5	
Guizou	5	4	5	
Yunan	4		4	
Inner China	**7**	**7***	**7**	**13**
Yangtze Delta	19	20	17	15
Xinjiang	7		8	

* based on four provinces

urbanized regions, Hebei and the Yangtze Delta.

Urban population: 1391-1630

In order to calculate the urban population in the Ming dynasty, we again used the work of Cao (2001), who has supplied a complete dataset for individual cities and provinces, as well as an estimate for China as a whole. Cao's dataset contains the following estimates: (1) national estimates of the urban population in 1391 and 1630; (2) 13 provincial estimates for 1391 and

1630; and 3) 488 individual city estimates for 1391, 529 estimates for 1630, and 16 estimates for the remaining benchmarks of the Ming dynasty. Consequently, not all cities were available for all benchmarks.

To begin, we took Cao's estimates for 1391 and 1630, albeit that these estimates had to be modified in a few cases. Because new evidence, based on original materials, has surfaced since Cao published his study (2001), we corrected his estimates for two large cities in 1630. For Nanjing, recent research points to a much greater population than the 450,000 inhabitants estimated by Cao; memoires of local officials and gentry report about one million people in Nanjing in the late Ming[5]. We made a similar correction for Suzhou based on the estimated 50,000–60,000 workers in silk textile industry[6], which accounted for half of the total urban population[7]. Besides these changes, we added three individual city estimates taken from Chandler's dataset and one based on original material in our Ming dataset. By combining total rice storage with rice consumption per person we estimated that the urban population of Hangzhou was about 1,000,000 in 1630.[8]

We had to make a few more corrections to Cao's estimates because for some provinces he used a low threshold of 1,000 inhabitants to define a city (instead of the standard of 2,000 people) and, also, he did not include the military population, which was often quite large in border regions (e.g. Gansu, Yunnan and Guizhou). We made additional, but relatively small, corrections to take this into account. In this way we arrived at our estimates of urbanization for 1391 and 1630. It is also possible to make estimates for another benchmark year, 1644, at the end of the Ming dynasty, by combining our estimate of the urban population in 1630 with ratios of population loss between 1630 and 1644 provided by Cao (2001); these ratios are based on a large number of observations in individual cities and villages during the late Ming.

Urban Population: 1102-1291

Not entirely unexpectedly, data for the Song and Yuan dynasties are the least reliable. Due to data limitations, few scholars have supplied complete sets of urbanization data for the Yuan or Song. The estimates we present here are therefore tentative. For the Yuan dynasty, Han Guanghui (1996), Liang Gengyao (1997), Wu Songdi (2000) and Long Denggao (2003) supplied a number of estimates of the population sizes of individual cities, based on city censuses in 1205 and 1291 (see Table 5). This evidence suggests that in 1291, during the Yuan dynasty, cities were much smaller than during the Song. On average the decline was 36%, which gives (assuming that these seven

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[5] Economic research center in Nanjing government edited (1990): *paper selection of economic history in Nanjing*, Nanjing: Nanjing press, pp.27~38.(南京市人民政府经济研究中心编:《南京经济史论文选》,南京出版社 1990 年版，第 27~38 页.)

[6] See Du Chebie (2012), *primary exploration on amount of population Slaughtered by Manchurian in late Ming and early Qing*, http://blog.boxun.com/hero/201207/dhd00/1_1.shtml(杜车别:《明末清初满清屠杀人口总数之初步考察》)

[7] See Zhu Guozheng (1628-1644):*memorabilia in Ming dynasty*, vol.44, Huzhou: Xunxi Zhufu publisher.(朱国祯:《皇明天事记》卷 44, 湖州：浔溪朱府刻本。); Besides these changes, we add 3 individual city estimates from Chandler's dataset and one based on the original material in our Ming dataset.

[8] *Wanli Hangzhou fuzhi*(万历《杭州府志》) provides us with the total rice storage in Hangzhou in the late Ming dynasty. *Anwu sizhong* written by Bao Sichen（《安吴四种》）records the rice consumption per person in the lower Yangtze Delta in Ming–Qing times.

cities are representative for the Yangtze Delta as a whole) an urbanization ratio for the Yangtze Delta in 1291 of 18%.

Table 5

Comparison between numbers of inhabitants of seven cities in the Lower Yangtze Delta in 1205 and 1291

Cities	1205	1291
Hangzhou	1,100,000	575,000
Suzhou	500,000	500,000
Zhengjiang	79,500	65,767
Jiaxin	50,000	32,900
Changzhou	50,000	27,040
Nanjing	300,000	94,992
Songjiang	—	35,300

Sources: Han Guanghui (1996), Liang Gengyao (1997), Wu Songdi (2000) and Long Denggao (2003).

The population sizes of another set of cities (outside the Yangtze Delta) have been supplied by Chandler and Fox (1974), Han Guanghui (1996), and Liang Gengyao (1997); there the urban populations were on average slightly greater than 60% of their numbers during the Song dynasty. Yet, given that population dropped by no less than 50% (see Table 1), this implies a rise in urbanization. However, due to population loss during the warfare that preceded the Yuan dynasty, 24 cities that had had populations greater than 10,000 persons in the Song dynasty saw their populations fall below 10,000 inhabitants (i.e. 24% of the total number of cities of more than 10,000 people in the Song). Hence, it seems fair to assume that urbanization during the Yuan period was roughly equal to that of the Song (see below), i.e. approximately 12% (the result of an equally severe drop in both population and city sizes).

Finally, we have to deal with the Song dynasty. However, before we discuss the estimates for the 1102 and 1205 benchmarks, we should put these years into context. The year 1102 belongs to the period when the Song dynasty was at its peak; its capital at this time was Kaifeng. In 1125 the dynasty was defeated by a northern nomadic clan and as a result it lost its territories in northern China. Ultimately it was forced to move its capital south to Hangzhou (in 1131). Thereafter it was known as the Southern Song dynasty. In the meantime, the nomadic clan that had defeated the Northern Song established a new dynasty, the Jin, by combining its original territory with the territories it had captured from the Northern Song. Hence, in 1205 the Southern Song and Jin dynasties in combination occupied the territories that in 1100 had belonged to the Northern Song.

Data for the size of the Northern and Southern Song dynasties capital cities (Kaifeng and Hangzou, respectively) in 1109 and 1205 are available; they are based on the number of households in both cities and are relatively well accepted by academics. More problematic, however, is the determination of household size. For example, Long Denggao, who estimated average household size in Kaifeng and Hangzhou to be 4.5 persons[9], criticized Wu Songdi for assuming a household size of 7, which implied a total population close to twice that found by Long

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[9] Long Denggao provided four reasons to support a common household size of less than 5 people. See Long Denggao(2003), *Market historical evolution in the Yangtze delta:11ᵗʰ~19ᵗʰ century,*,《江南市场史——十一至十九世纪的变迁》, pp. 50.

Denggao. Yet, as shown by Wu Songdi[10], household sizes could easily average as much as 6-7 persons.

In our study we have mainly followed Long Denggao (2003), albeit with some small modifications. First, we agree with Wu Songdi (2000) that households were probably larger, but we increased this estimate to only 5 persons for both Kaifeng and Hangzhou. In addition, Long Denggao relied mainly on the registered population numbers, meaning that his estimate excluded specific social groups such as the military, officials, Buddhist monks, and so on. After multiplying the number of households in Kaifeng and Hangzhou by 5 and adding estimates for specific social groups taken from Wu Songdi, we arrived at a total population for both cities of 1 million and 1.1 million, respectively (see Table 6).

Table 6

Estimates of the population size of Kaifeng and Hangzhou during the Song dynasty

	Wu Songdi's estimate	Long Denggao's estimate	Our estimate
Kaifeng	1.5 million		1 million
Huangzhou	1.2~1.3 million	0.7 million	1.1million

Sources: Wu Songdi (2000), *China's population history*(《中国人口史》)，volume 3, p. 574 and p. 581. Long denggao (2003), *Market historical evolution in Yangtze delta:11th–~19th century* (《江南市场史——十一至十九世纪的变迁》, p. 54.

Due to limitations of data, for the Lower Yangtze Delta we had to focus on the benchmark year of 1205. For this region, Liang Gengyao (1997) and Wu Songdi (2000) provide us with the most reliable estimates of the population of three big administrative cities (i.e. Suzhou, Zhengjiang, and Nanjing), which were derived from direct population reports in private documents and local gazetteers. Data for an additional three administrative cities (i.e. Changzhou, Jiaxin and Huzhou) were obtained from Chen Guocan (2001)[11]. Supplementary to these estimates, Long Denggao (2000) tried to estimate of the urban population for the remaining administrative cities in the Yangtze: he assumed 1,000 households for each of the remaining county cities.[12] Combining the estimates for all these cities with data on an additional 13 smaller administrative cities (i.e. county cities) from Long Denggao (2003), we calculated the total urban population in administrative cities in the Lower Yangtze.

However, this still excluded residents from market towns. These were derived from Chen Guocan (2001) who estimated the existence of 10 large market towns with populations greater than 10,000 and 30 smaller market towns with more than 2,000 inhabitants. Yet, although he claimed there were 10,000 inhabitants in each of the large market towns of the Southern Song dynasty, Chen Guocan's argument is contradicted by Han Guanghui (1996), who found that there were no large market towns of more than 10,000 inhabitants in the Lower Yangtze Delta on the eve of the reunification of China by the Mongols (i.e. in the first half of 13th century). Hence, a fair assumption seems to be that a large market town had at least 1,000 households (i.e. 5,000 inhabitants). For the smaller market towns, we used Chen Guocan's estimate. Table 7 shows our new estimates for the entire Yangtze Delta.

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[10] Wu Songdi cited two pieces of evidence from private notebooks from the Southern Song dynasty to support a common household size of 6~7 persons. See Wu Songdi (2000), *China's population history* (《中国人口史》), vol. 3, pp. 581.

[11] He also claimed that cities such as Zhengjiang, Weizhou and Taizhou, which witnessed the census of approximately 10,000 households in each city, should have had the same size as Changzhou, Jiaxin and Huzhou.

[12] Many scholars, for instance Yoshinobu Shiba (1986), Guo zhengzhong（1997）and Chen Guocan (2001), put the number of inhabitants in a county town during the Song period at about 1000~5000 .

Table 7

Estimate of urbanization for the Lower Yangtze Delta in 1205

City	households	inhabitants
Hangzhou	174,330	1,100,000(including other social groups)
Suzhou	100,000	500,000
Zhengjiang	15,900	79,500
Nanjing	60,000	300,000
Changzhou	10,000	50,000
Jiaxin	10,000	50,000
Huzhou	10,000	50,000
13 county cities	13,000	65,000
10 large towns	10,000	50,000
30 smaller towns	15,000	75,000
total urban population	418,230	2,319,500
total population	1,800,000	9,133,503
Urbanization ratio		25%

Note: our calculations of the number of inhabitants is based on the assumption of 5 people per household.

Source: see the text above

To estimate the 1205 benchmark for China as a whole we had to combine the Southern Song territories with estimates for the Jin dynasty. We started by estimating the number of large cities in the benchmark year. At the eve of the reunification of China by the Mongols (i.e. the first half of 13th century), 119 large cities of more than 10,000 inhabitants can be documented for Inner China, as Han Guanghui (1996) proposed. For cities with fewer inhabitants we assumed the numbers to be identical to the estimates provided by Qixia (1987) for the year 1102, since available evidence suggests that city sizes for the smaller cities remained the same, corrected for share population in Gansu, a part of Shaanxi and Yunnan. Moreover, from studies by Shiba (2012) and Long (2003) we know the length (in km) of the perimeters of Song cities (Table 8).

Table 8

Length of city perimeters in different areas in Song (km)

Cities	Lower Yangtze Delta	Middle Yangtze Delta	Northern China	southeastern and southern China	Average for Song China
Capital and provincial cities	35	10.3	12.1	10.05	12.55
Prefectural cities	13.1	5.1	2.3	4	5.75
County cities	0.95	2.45	2.05	0.75	1.8

Sources: Yoshinobu Shiba (2012) and Long Denggao (2003),

By comparing estimates of the geographical and population size of a subset of 35 cities across Inner China for both the Northern and Southern Song[13], for which we know both their area and

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[13] According to records, there were few differences in the length of city perimeters between the Northern and Southern Song. In this dataset, data on city perimeters are derived from Shiba' collection(2012), combined

population size, we estimated that the number of inhabitants per square kilometre was about 13,600. This is close to the average population density of European cities in the Middle Ages and Roman times, estimated by De Ligt (2012: 201, 215) at 15,000 per square kilometre.

Table 9

Urbanization in 1205

city type	No. of cities	people per km²	city spatial area (km²)	urban population (million)
city > 10,000 inhabitants	119	13,600	2.631	4.26
provincial/prefectural city	165	13,600	0.578	1.30
county city	883	13,600	0.578	6.95
market town	1,103	13,600	0.361	5.42
Total				17.9
Total population				143.82
Urbanization ratio				12%

Sources: for the number of cities, Qixia (1987) and Han Guanghui (1996); for city size, Shiba (2012) and three local gazetteers; for the urban population, see our estimates.

By combing the numbers of cities, their spatial size, and the number of inhabitants per square kilometre, we estimated the level of urbanization in 1205 to be 12% (Table 9). The question is whether we can cross-check this estimate. It matches very well with the findings of Wu Songdi (2000), who estimated an urbanization ratio of 12% for the Southern Song for the same year. However it deviates considerably from the approximately 21% found by some other researchers (e.g. Yoshinobu Shiba, 1997; Kang Cao, 2006). Yet, most scholars now seem to favour the lower estimate since it more closely matches economic development during the Song period. Our estimate for 1205 is much the same as the estimate for 1102 by Qixia (1987), who estimated an urbanization ratio of 12% for the Northern Song dynasty, although this excludes parts of Hebei and Shanxi, Gansu and parts of Shaanxi, and Yunnan. Together these territories make up roughly 9% of the total territory of Inner China. Hence, assuming that urbanization in these areas was on average slightly below that of the Northern Song, we estimated that total urbanization for Inner China in 1102 would not have been lower than approximately 11%.

Overview 1102–1918

In sum, our dataset covers estimates of urban population at city, provincial, regional (i.e. Southern China, Northern China and the Lower Yangtze Delta) and national levels. By combining our data on Song, Ming and Qing China, we arrived at an overview – admittedly tentative – of urbanization in China for cities of more than 2,000 people (see Table 10). What we found is a

with another three local gazetteers (i.e. *Jiaqing Chongxiu Yangzhou Fuzhi, Guangxu Hanyang Xianzhi and Daoguang Fancang Xianzhi*) and data on the urban population from our dataset for both Song periods.

constancy of urbanization in China as a whole: urbanization peaked in the Song dynasty during 10~12th centuries, remaining fairly constant until the late Ming, after which it declined until

Table 10

Urbanization ratios (%) per region and benchmark year (cities ≥ 2,000 inhabitants)

	1102	1205	1291	1391	1630	1644	1776	1851	1893	1918
Hebei (including Rehe, Beijing, Tianjin and Baoding)				10	18	16	13		8	
Shaanxi				8	9	7	5		7	
Shanxi				6	6	3	10	10	9	
Shandong				6	8	7	5	5	3	
Henan				7	7	6	5	4	5	
Jiansu (including Shanghai)				14	18	16	14		14	
Zhejiang				14	18	16	10		14	
Fujian				14	10	10	6		7	
Jiangxi				6	8	8	8		7	
Huguang (including Hunan and Hubei)				9	12	10	6		6	
Guangdong				7	7	7	8		8	
Sichuan				10	10	4	7		7	
Anhui							5		5	
Gansu					9		3		5	
Guangxi				8	9	9	5		5	
Guizou					9	9	5	4	5	
Yunan					9	9	4		4	
Inner China	**11**	**12**	**12**	**10**	**12**	**11**	**7**	**7**	**7**	**13**
Yangtze Delta		25	18	19	23	20	19	20	17	15
Xinjiang							7		8	

the late Qing before recovering to Song levels in the first decades of the 20th century. Most of the provinces seem to have mirrored this trend (see Table 10); Guangdong and Shanxi, which had higher levels of urbanization after the Yuan dynasty, being exceptions. Perhaps the most important exception, however, is the Lower Yangtze Delta, which started out with very high levels of urbanization, which, after a temporary decline during the Yuan dynasty followed by a minor recovery in the early Ming, slid into permanent decline until the first years of the Republican period

Besides the small adjustments we make to existing studies, our data may also be considered as a summary of the urbanization trend in China An overview of the existing estimates of Chinese urbanization is provided in Table 11. For the latter years of the period, our estimates are very similar, if not identical, to those of other authors – often because we relied on their data; for the earlier years of the period our estimates tend to be more conservative.

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Table 11

Comparison of estimates of urbanization ratio (%) in both the Lower Yangtze Delta (YD) and China (CH)

Scholars' estimates	1109		1205		1291		1391		1630		1644		1776		1851		1893	
	YD	CH	YD	CH	YD	CH	YD	CH	YD	CH	YD	CH	YD	CH	YD	CH	YD	CH
Kang cao		20		22												6.9		7.7
Shiba				21														
Qixia		12																
Wu Songdi				12														
Long Denggao			15															
Skinner															5		6
Cao Shuji					19	10	19	10			16	7					17	7
Li Bozhong													20				
Our estimates		**11**	25	**12**	18	**12**	19	**10**	23	**12**	20	**11**	19	**7**	20	**7**	17	**7**

3. Explaining urban development

Urban systems are determined by socio-political and economic forces. Here we examine these forces by focusing on four important trends in the urban structure: urban primacy (the share of the largest capital city in total population), the development of small market towns (often linked to the commercial revolution of the late Ming), the share of the port cities in total population (related to the links between the Chinese economy and overseas trade), and the shifting importance of highly urbanized versus under-urbanized regions within the Chinese Empire. Together these four forces explain to a large extent the decline in the urbanization ratios observed.

Urban primacy

The size of the largest city – the primate city – is a first index of the size and structure of urbanization. Bosker et al. (2013) demonstrated that this 'primate city effect' is related to the political economy of states: in the Arab world, the urban system was dominated by a few large capital cities (Baghdad, Damascus, Cairo, Istanbul), which had the features of typical 'consumer cities'. European cities were on average much smaller, and less dependent on the states they were part of – in particular during the Middle Ages, when 'producer cities' dominated the urban landscape. This has also been demonstrated by recent research into historically contemporary urban systems. Ades and Glaeser (1995) and Davis and Henderson (2003) have shown that high levels of urban concentration are linked to a higher degree of political instability and lack of democracy: *"Urban giants ultimately stem from the concentration of power in the hands of a small cadre of agents living in the capital. This power allows the leaders to extract wealth out of the hinterland and distribute it in the capital"* (Ades and Glaeser, 1995: 224). When a few large cities dominate the urban landscape, this tends to be indicative of an the urban system that is much more oriented towards serving the need of the political elites in these major cities (see, for example, the difference in urban landscape between northern and southern Italy documented in Bosker *et al.*, 2013).

Our dataset allows us to identify the largest cities in China. In 1100, Kaifeng, the capital of the northern Song, was the largest city with probably about 1 million inhabitants; in 1200 this was Hangzhou, the capital of the southern Song, with an estimated population of 1.1 million. The largest city in Europe in 1100 was Cordoba (80,000 inhabitants), and in 1200 Paris (110,000), only a fraction of the Chinese capitals. But in the 19th century the largest city in China, Beijing, with about 1 million inhabitants, was in fact smaller than Hangzhou in 1200, and in 1900 the commercial metropolis Shanghai counted only 900,000 people and had almost overtaken Beijing; in 1918 it was surpassed by another commercial metropolis, Guangzhou, with 1.6 million inhabitants. As Table 12 shows, the share of the primate city in the total population of China fluctuated throughout the period: it rose slightly from 1% in 1100 to 1.4% in 1400, only to be followed by a significant decline, before starting to recover early in the 20th century. Over the same period the tiny capital cities of Europe had grown considerably. Around 1800, London, which emerged as the largest city (surpassing Paris), was about the same size as Beijing, but after 1800 London underwent unparalleled growth. Around 1900 it had more than 6 million inhabitants, approximately 2.3% of the population of Western Europe. In the Arab world this percentage fluctuated around 1.5%, with a tendency to rise to more than 2% after the consolidation of the Ottoman Empire (the share of the population living in Istanbul increased from 1.8% in 1500 to 2.2% in 1800).

Table 12

Urban primacy in China and Western Europe compared, 1100-1900

| | Primate city (in 1,000 inhabitants) | | Primate city/Total population (in %) | |
	China	Western Europe	China	Western Europe
1100	1,000	80	1.0	0.2
1200	1,100	110	0.8	0.2
1300	1,090	120	1.5	0.2
1400/1391*	950	100	1.4	0.2
1500		250		0.4
1600/30	1,240	300	0.7	0.4
1700/1644	650	575	0.4	0.6
1800	987	948	0.3	0.7
1850	1,063	2,236	0.3	1.1
1900	1,104	6,226	0.2	2.3
1918	1,600		0.4	

Source: see text.

*1400=Europe and 1391 =China

During the Song, China had an urban system dominated by one large city, its capital. Actually it had two capital cities, one during the Northern Song and one during the Southern Song, which together were responsible for around 2% of the total population. In terms of primacy, this was comparable to the Arab world, where similar huge cities were to be found. But this changed dramatically between 1100 and 1900. It can be argued that the size of a capital city in the first place reflects the capacity of the state to mobilize resources. From this perspective the relative decline of the Chinese capital points to changes in the political economy of the Empire that have been discussed by others in much greater detail (e.g. Ma, 2011), ultimately leading to the declining capacity of the state to extract resources from the economy, maintain an efficient bureaucracy and supply public services. By contrast, Europe went through a process of state formation that greatly enhanced the capabilities of its states: in Western Europe the share of taxation in GDP rose to 8-12% in the first half of the 19th century, whereas the estimates for 19th century China are as low as 2% of GDP (Ma, 2011).

The contrasting paths of formation of the Chinese and European states also help to explain contrasts in the urbanization process. The changing position of the primate city in the economy

and in the urban structure was part of a much broader change in the structure of urbanization, to which we now turn. Both Skinner (1977) and Rozman (1973) have pointed out that the structure of Chinese urban system of the 19th century was rather unbalanced, with its 'peak' being quite flat. Rozman compared this with Japan, where Edo with its million inhabitants was huge; there, more than 3% of the total population lived in the capital, testifying to the ability of the Japanese state to tax its population. China moved away from such an urban structure dominated by one (or a few) large consumer cities, which undermines the analysis put forward by Acemoglu and Robinson (2011) that 'extractive institutions' put in place by the state hindered its economic development. Our data suggest that such extractive institutions (as measured by urban primacy) appear to be more effective for the period of economic prosperity during the Song than for the Qing.

Development of market towns

 Between the Song and the Qing the upper structures of the urban pyramid grew weaker, although at the same time it has been argued that its basis was strengthened. Some literature suggests that during the (late) Ming and the Qing a commercial revolution occurred, resulting in what is often called 'the rise of market towns', a phenomenon which was particularly marked in the Yangtze Delta (for an overview see Deng 2000). We have only been able to estimate the share of the small towns (with between 2,000 and 10,000 inhabitants) in total urban population for the benchmark years 1205 and 1776 (see Table 13). The upper part of the table documents the decline of the share of large cities in the total population; the bottom part points to the growth of small towns that occurred at the same time,

Table 13

Structure of the urban system in 1205 and 1776 for cities of more than 10,000 inhabitants, and for cities of between 2,000 and 10,000 inhabitants

		1205	1776
Cities > 10,000 inhabitants			
Yangtze Delta	No. of cities	17	55
	Urban population	2,129,500	3,700,000
	Total population	9,133,503	24,825,000
	Share of large cities	23%	15%
Inner China	No. of cities	119	357
	Urban population	6,262,000	11,198,900
	Total population	138,720,000	305,100,000
	Share of large cities	5%	4%
Cities with 2,000–10,000 inhabitants			
Yangtze Delta	No. of cities	40	357
	Urban population	190,000	956,000
	Share of small cities	2%	4%
Inner China	No. of cities	2151	2874
	Urban population	10,044,000	10,158,100
	Share of small cities	7%	3%

which to some extent compensated for the decline of the large cities of the Yangtze Delta. For Inner China as a whole this was not the case, however; by contrast, it is striking that the decline in the overall urbanization ratio between 1205 (12%) and 1776 (7%) is largely explained by the falling share of the relatively small cities.

The reason for this difference in development between the Yangtze Delta and Inner China as a whole is less easy to assess. Both regions witnessed a steep population increase over this period. Yet, in Inner China as a whole most of this "new" population lived in the countryside (hence decreasing urbanization levels) and in cities larger than 10,000 inhabitants, while in the Yangtze Delta these people lived in the countryside and cities of less than 10,000 inhabitants. The reason for this difference may be twofold. On the one hand, as we show in the following sections, the large coastal cities in the Yangtze Delta declined steeply over this period, when the economic core shifted inland. This made large cities less attractive and accounted for much of their decline in the Yangtze Delta. On the other hand, it has been argued that the commercialization of the countryside was greater in the Yangtze Delta than for Inner China as a whole (e.g. Li Bozhong, 2000, 2003). Yet, since we found that the decline in large coastal cities was greater than the decline in all large cities (see below), this implies that large non-coastal cities in the Yangtze Delta actually grew at a pace similar to those for Inner China as a whole. This suggests that it was mainly the shift in economic core, rather than an increase in commercialization in the countryside, that drove the peculiar urbanization pattern in the Yangtze Delta.

Cities linked to overseas trade

A third factor affecting urbanization concerns waterways. In Western Europe it was in particular cities close to the sea that profited the most from the commercial expansion of the early modern period. (Acemoglu et.al., 2005). For Europe as a whole (excluding Russia), the proportion of urban populations living in cities bordering the sea increased from about 22% (in 1200 and 1500) to 32% in 1700. Later, by 1800, this proportion had declined slightly to 28%, due to industrialization inland (European data from Bosker et.al., 2013). Did overseas trade have a similar effect on the Chinese urban system?

Our dataset for 1205 includes eight coastal cities of more than 10,000 inhabitants (i.e. Laizhou, Haizhou, Hangzhou, Wenzhou, Fuzhou, Quanzhou, Xinghua, and Guangzhou). By combing the findings of Han Guanghui (1996), Liang Gengyao (1997) , Wu Songdi (2000) and Long Denggao (2003) with the Historical Atlas of China (Tan Qixiang,1996, volumes 6 & 7), we were able to tentatively estimate the share of the population living in coastal cities of more than 10,000 inhabitants for the benchmark year 1205.[14] For 1776 we arrived at the urban population in coastal cities above 10,000 inhabitants by combining Cao (2001) with the *Historical Atlas of China* (Tan Qixiang, 1996, volume 8).[15]

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[14] The works of Han Guanghui (1996), Liang Gengyao (1997), Wu Songdi (2000) and Long Denggao (2003) provided us with estimates of the urban populations for the following cities: Hangzhou had 1,100,000 inhabitants, and Wenzhou and Quanzhou had approximately 50,000 inhabitants each. Fuzhou had approximately 10,0000 inhabitants and Guangzhou 60,000. We estimated the urban population of the three remaining cities by using population densities. Since population densities in Xinghua prefectures were similar to those of the prefectures of such cities as Wenzhou and Quanzhou, we assumed that Xinghua had 50,000 inhabitants. Likewise, since the population densities of the prefectures of Laizhou and Haizhou were one-third lower than those of the other prefectures of coastal cities greater than 10,000 inhabitants, we assumed that both Laizhou and Haizhou had populations of 10,000 inhabitants each.

[15] Zhili had only one coastal city over 10,000 inhabitants (i.e. Tianjin). Shandong had 4 coastal cities larger than 10,000 inhabitants (i.e. Dengzhou, Laizhou, Huangxian and Jiaozhou). Jiangsu had 3 coastal cities over

The results for both 1205 and 1776 are reported in Table 14. For Inner China as a whole, we found a decline in the share of coastal cities in the total population from 1% in 1205 to 0.6% in 1776. In terms of the share of total urban population, this meant that the share of urban population living in coastal cities greater than 10,000 inhabitants remained roughly constant at 8.5%, a share much lower than that for Europe. Nevertheless, there were major differences between regions. For example, in the Yangtze Delta, coastal cities had a much more important place in the urban landscape of 1205 than that of 1776. Indeed, a significant share of the overall decline in urbanization in this region was caused by the dramatic decline of its coastal cities: their share in the total population fell from 12% in 1205 to 2% in 1776. Meanwhile, with the exception of Fujian, other provinces witnessed an increase in the share of large coastal cities in the total population, suggesting that the economic core slowly shifted away from the Lower Yangtze region.

Table 14

Share (%) of coastal cities of more than 10,000 inhabitants in the total population of the Yangtze and of Inner China respectively by region in the benchmark years 1205 and 1776

| Region	1205	1776
	Urban population in Yangtze/ population in the Yangtze	
Lower Yangtze Delta (i.e. southern Jiangsu and northern Zhejiang)	12%	2%
	Urban population/population in Inner China	
Hebei		0.05%
Shandong	0.01%	0.02%
northern Jiangsu	0.01%	0.01%
southern Zhejiang	0.01%	0.19%
Fujian	0.14%	0.07%
Guangdong	0.04%	0.07%
Total Inner China	1.00%	0.60%

It is clear that coastal cities played a much smaller role in China than they did in Europe. Map 1, showing Chinese cities in 1776, confirms the picture of the rather marginal importance of sea ports in the urban system of China as a whole: they are more or less equally

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10,000 inhabitants (i.e. Baosan, GanYu and Huangjing). These totaled roughly 0.8% of the urban population in this province. Zhejiang 4 coastal cities over 10,000 inhabitants (i.e. Hangzhou, Wenzhou, Ganpu and Zhapu). For both Fujian and Guangdong provinces there is little direct information available. Since the population density in coastal prefectures, along with the provincial urbanization as a whole, was similar in Shandong and Fujian provinces, we assumed the share of urban people living in coastal cities to be the same in both provinces. Likewise, since the population density in coastal prefectures was almost identical in both Zhili and Guangdong provinces, we assumed the share of people living in coastal cities in the total urban population to be the same in Guangdong.

20

Map 1

Chinese cities in 1776
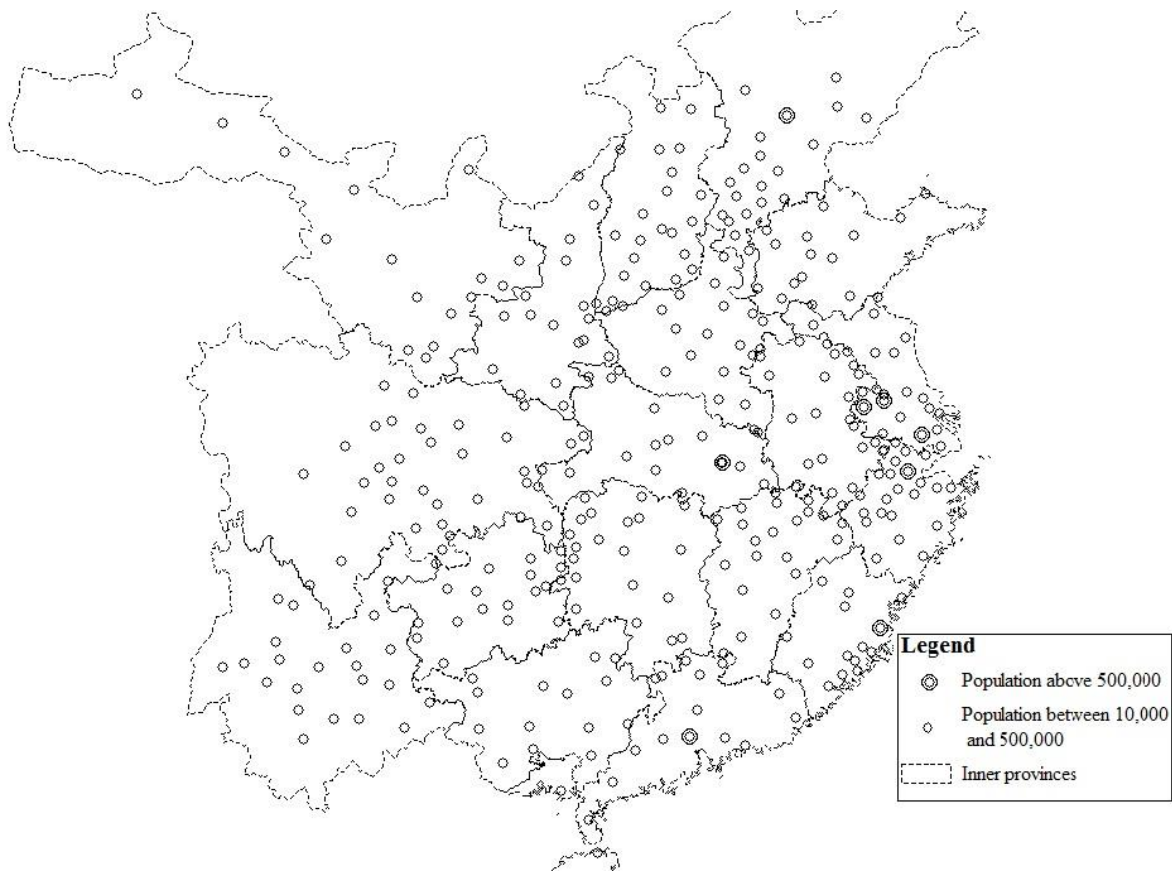
spread over the empire, without a clear tendency to be concentrated near the sea, much like Huff and Angeles (2011) found for Southeast Asia in the second half of the 19th century.

Regional spread of urbanization

A fourth major factor in the development of the urban system is changes in the regional distribution of the population. Two trends are visible: during the Song, the share of the south, and in particular the share of the Yangtze Delta, in the total population increased: in the south it climbed from 67% in 1205 to 81% in 1391, an increase partly driven by the rise from 6% to 13% of the two provinces that made up part of the Yangtze Delta. Thereafter the trend reversed, and the share of Jiangsu and Zhejiang in the total population declined to 8% in 1776 and 4% in 1893. Since this was, from the Song period onwards, the most urbanized region – its urbanization ratio was about twice the national average – this relative decline of the Yangtze Delta in the total population contributed to the overall decline of the urbanization ratio. But it raises a more important issue: why did this happen? Why did the most advanced parts of China see their share in population fall so dramatically while in Europe the comparable North Sea area gained in population share (Van Zanden, 2000)?

In the case of Europe three factors played a role: (1) Income growth resulted in disproportionate growth in demand for manufactured products and services, which were (mainly) produced in cities. (2) Technological change in the secondary and tertiary sectors was more rapid

than in agriculture, resulting in the long-term decline of the prices of manufactured goods (and certain services, such as transport). Consumers responded by buying more books, textiles and kitchen utensils, and imported colonial goods such as coffee, tea and sugar, and by spending less on foodstuffs (for example, the consumption of meat declined in absolute terms). The combination of rapid technological change and a 'consumer revolution' boosted the share of manufacturing and services in employment, and led to a rise in the urbanization ratio. (3) These trends were to some extent counterbalanced by the ongoing reallocation of production processes between town and countryside; in particular the rise of proto-industry (which occurred in waves) led to the reallocation of manufacturing from cities to the countryside, where wages were lower. But the rapid growth of proto-industrial areas in due course resulted in the formation of new urban agglomerations. The key to the urbanization process was that the concentration of secondary and tertiary activities in urban nodes resulted in economies of scale, technological spillovers and positive externalities that resulted in productivity gains; slow but persistent before the Industrial Revolution, accelerating during the 18th and 19th centuries. This increase in productivity made it possible to remunerate factors of production – in particular labour – to compensate for the 'disamenities' of urban life (such as the high cost of foodstuffs).

These factors are probably best illustrated by the structure of wages in the European economy. In the 17th and 18th centuries nominal wages (expressed as grams of silver) in the urban core of Western Europe (the Low Countries, England) were about three times the levels found in the 'periphery' (in Poland) (Van Zanden, 1999). At the same time, international trade between the Baltic region and Western Europe was substantial – Western Europe imported grains, timber and other primary commodities, in return for which it supplied international services and manufactured goods. This implies that on balance labour productivity in the North Sea area was such that it compensated for the much higher wages that had to be paid there. In real terms, the gap in wage levels was much smaller, but nevertheless persistent.

This was different in China. Based on qualitative information from gazetteers regarding population, consumption, land use, industrial structure, trade and taxation Gao Wanglin (1999) divided 18th century China in different geo–economic areas ranging from 'most advanced' to 'less developed'. Combined with research by Allen et.al. (2011) on the spatial structure of Chinese nominal wages in the 18th century, we find that in China wages were lowest in the most advanced provinces and highest in the less developed periphery. Until early 20th century, this pattern didn't change much (see Table 15). Apparently, the concentration of economic activities in the Yangtze Delta did not give rise to the scale and agglomeration economies that made possible higher levels of nominal and real incomes there. The highest nominal wages were earned in the poorest areas of the empire – almost empty regions, which attracted large numbers of migrants and grew much more rapidly than the Yangtze Delta. Indeed, Lee (2012) showed that the immigrants in general lived better in the peripheral areas than in the core areas, from which they originated. The main reason for this was that they were able to rent the more fertilized lands from local landlords and to

Table 15

Nominal wages in tael per day in construction in core and peripheral regions, 1769s and 1918

Area	Province	1769		1918	
		Unskilled workers	Skilled workers	Unskilled workers	Skilled workers
Most advanced	Zhejiang	0.04	0.06	0.14	0.29
	Jiangsu (including Shanghai)**	0.04	0.05	0.12	0.25
	unweighted average	0.04	0.06	0.13	0.27
Advanced	Guangdong (including Canton)	0.04	0.05		
	Sichuan	0.05	0.06		
	Fujian	0.03	0.05	0.21	0.32
	Henan	0.04	0.04	0.16	0.22
	Hebei(including beijing)	0.05	0.08	0.12	0.28
	Rehe	0.07	0.12	0.19	0.35
	Shandong	0.05	0.06	0.12	0.18
	unweighted average	0.04	0.06	0.16	0.27
Less developed	Hunan	0.04	0.05		
	Hubei			0.11	0.22
	Shanxi	0.05	0.07	0.11	0.2
	Shaanxi	0.04	0.05		
	Heilongjiang	0.10	0.19	0.56	0.76
	Jilin	0.10	0.16	0.33	0.53
	Liaoning	0.06	0.10	0.28	0.43
	Xinjiang	0.10		0.63	0.81
	Gansu	0.04	0.05	0.18	0.26
	Yunnan	0.05	0.07		
	Taiwan	0.03	0.05		
	unweighted average	0.06	0.09	0.31	0.46

Sources: Subdivision of macro regions according to their level of development, from Gao Wanglin (1999); nominal wage in 1769 from Allen et.al. (2011) ; and nominal wage in 1918 from The Seventh Statistics of Agriculture and Commerce in Republican China (《中华民国第 7 次农商统计》).

monopolize both industry and the service sectors in these regions.

These fundamental differences also show up in what we know about migration patterns in the Western Europe and China (Lucassen and Lucassen, 2014). In Western Europe, large migration streams were focused on urban cores: the Netherlands drew migrants from Germany and Scandinavia, in particular during its Golden Age in the 17th century. Similarly, England attracted large numbers of migrants from Ireland. So the dominant flow of migrants was from

periphery to core, feeding urban agglomerations, and thus core regions such as the Low Countries and the UK grew more rapidly than the periphery. The share of the North Sea region in the total population of Western Europe grew from 11% in 1500 to 20% in 1820 (and to 23% in 1900) (Van Zanden, 2000), whereas, as we have already seen, in the same period the Chinese core (the Yangtze Delta) shrank in relative size. Indeed, in China migration was focused on the periphery,: Taiwan was peopled with migrants from Fujian, the population of Sichuan received migrants from the middle Yangtze area, and the West and North were probably the most popular destinations. These marginal areas with a relatively low rate of urbanization saw their share in the Chinese population explode: Sichuan's share, for example, increased from 2.2% in 1393 to 3.9% in 1630 and further to 10.6% in 1893; Yunnan, another province with a relatively high wage level, saw its share increase from 1.3% in 1630 to 3.3% in 1893.

The decline in the rate of urbanization during the Qing was therefore part of a much wider process of structural change. In Western Europe cities were engines of technological and economic change, in post-Song China they apparently did not play such a role (see also the discussion in Rosenthal and Wong (2011) and Li and Van Zanden (2012)).

4. Conclusions

We present in our paper a series of coherent estimates of the size of the urban sector in China between the Song and the late Qing. The pattern we found was one of high levels of urbanization during the Song, stability until the late Ming, followed by a drop during the Qing dynasty, before recovering to Song levels in the early years of the Chinese republic. These developments are almost diametrically opposed to those of Europe, which in the same period underwent a long-term rise of urbanization and the emergence of very large cities. We suggest four explanations to explain these trends. First, in China the size of the capital city shrunk in relative terms over time, suggesting a weakening hold of central government on the economy and society, resulting in a declining capacity to collect taxes. The relative decline of the largest (capital) cities weakened the upper structure of the urban system (a feature already noticed by Skinner and Rozman). Second, port cities were much less important in China than in Europe, and they continued to be rather marginal, pointing to the possible 'inward looking' nature of the economy. In particular the Yangtze Delta saw a large decline in the share of port cities in the total population between 1205 and 1776.

This second point is also related to a third one, namely the role of market towns. It has been argued that the commercial revolution of the mid-Ming era resulted in the growth of relatively small market towns, in particular in the Yangtze Delta, strengthening the lower strata of the urban system. The effect of this commercial revolution on the urban structure of China as a whole was limited, however – the share of small towns (2,000–10,000 inhabitants) in the total population fell between the Song and Qing. Likewise, in the Yangtze Delta, if the coastal area is excluded (which witnessed a decline of its coastal cities due to a shift of its economic core), we also find a relative rise of big cities, thus casting some doubt on the market town hypothesis. Finally, fourth, during the Qing factors of production – in particular labour - moved away from the more urbanized core to 'underdeveloped' areas that had been recently conquered or stabilized by the central government. This contributed to the decline of the urbanization ratio, although 'underdeveloped' areas witnessed the growth of the share of large cities between the ng and Qing dynasties, this latter change probably being related to a different direction of technological change in the Chinese economy compared to Europe.

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Appendix 1

Estimates of the population of individual cities of more than 25,000 inhabitants in 1918

province	city	No. of inhabitants	province	city	No. of inhabitants
Shandong	jinan	300,000	Guangxi	wuzhou	80,000
	jining	200,000		guilin	60,000
	yantai	100,000		liuzhou	60,000
	yizhou	100,000		nanning	50,000
	tanxian	100,000		yulin	50,000
	qingdao	90,000		longzhou	40,000
	huangxian	80,000	Hubei	hankou	350,000
	laizhou	80,000		wuchang	250,000
	zhoucun	75,000		hanyang	150,000
	dengzhou	60,000		shashi	87,000
	jiaozhou	50,000		xuncheng	65,000
	linqing	50,000		yichang	60,000
	qingzhou	50,000		jingzhou	60,000
	wenshang	50,000		wuxue	50,000
	jiaxiang	40,000		anlu	40,000
	tai'an	40,000		qianjiang	40,000
	dezhou	40,000		xiangyang	35,000
	tengxian	40,000		zaoyang	25,000
	yanzhou	38,000	Hunan	changsha	229,537
	zhucheng	35,000		changde	180,000
	tancheng	35,000		xiangtan	180,000
	dingtao	35,000		hengzhou	100,000
	caozhou	35,000		baoqing	90,000
	boshan	30,000		yiyang	80,000
	dongchang	30,000		jinshi	58,000
	dongping	30,000		yuanzhou	50,000
	feixian	30,000		yuezhou	40,000
	jinxiang	30,000		hongjiang	35,000
	pingdu	30,000		chaling	30,000
	shidao	30,000		chenzhou	30,000
	shouzhang	30,000		chenzhou	30,000
	chengwu	25,000		ningxiang	30,000
	yishui	25,000		wugang	30,000
	jimo	25,000		xinhua	30,000
Hebei	tianjin	900,000		youxian	25,000
	beijing	850,000	Guangdong	guangzhou	1,600,000
	baoding	100,000		hongkong	525,000
	chifeng	100,000		foshan	450,000
	tangshan	85,000		chaozhou	250,000
	zhangjiakou	72,000		xinhui	200,000
	shanhaiguan	70,000		jiangmen	168,000
	chaoyang	50,000		xiaolan	140,000
	pingquan	50,000		shaozhou	120,000

province	city	No. of inhabitants	province	city	No. of inhabitants
	chengde	45,000		chaoyang	100,000
	weizhou	40,000		chixi	100,000
	tazigou	40,000		taileung	87,000
	cangzhou	35,000		jieyang	80,000
	shunde	30,000		lianzhou	80,000
	tongzhou	30,000		Macau	80,000
	yongqing	30,000		shantou	80,000
	wudan town	30,000		haikou	70,000
	hejian	25,000		huanggang	70,000
	daming	25,000		zhaogqing	56,000
	linxi	25,000		xingning	40,000
Shanxi	taiyuan	80,000		heshan	40,000
	fenzhou	65,000		nanxiong	40,000
	lu'an	40,000		shilong	35,000
	qixian	30,000		qingyuan	32,000
	quwo	30,000		beihai	30,000
	yuncheng	30,000		lianzhou	30,000
	xinzhou	28,000		qiongzhou	30,000
	taigu	25,000		yingde	30,000
Henan	kaifeng	280,000		shilongtou	28,000
	zhoujiakou	200,000		shatou	25,000
	guangzhou	100,000	Fujian	fuzhou	625,000
	laohekou	100,000		quanzhou	130,000
	zhangde	60,000		xiamen	114,000
	gushi	60,000		jianning	60,000
	guide	50,000		ningde	60,000
	nanyang	50,000		zhangzhou	56,000
	ruzhou	45,000		hanjiang	40,000
	weihui	45,000		xinghua	40,000
	xuzhou	40,000		huangshi	40,000
	huaiqing	40,000		tong'an	40,000
	qixian	40,000		shanghang	35,000
	qinghua town	40,000		tieling	30,000
	zhengzhou	35,000		gutian	25,000
	qixian	35,000		longyan	25,000
	qiaozhou	35,000		tingzhou	25,000
	luoyang	30,000	Sichuan	chongqing	525,000
	ru'ning	30,000		chengdu	500,000
	suiping	30,000		xuzhou	125,000
	yongcheng	28,000		shunqing	120,000
	zhecheng	25,000		wanxian	110,000
	xiangcheng	25,000		fuzhou	100,000
	luyi	25,000		hanzhong	100,000
	dengzhou	25,000		luzhou	80,000
Shaanxi	xi'an	250,000		baoning	70,000
	xing'an	80,000		tongchuan	70,000

province	city	No. of inhabitants	province	city	No. of inhabitants
	tongzhou	80,000		suiding	70,000
	sanyuan	80,000		jiading	60,000
	weinan	50,000		suining	50,000
	chenggu	40,000		dazhu	50,000
	fuping	40,000		dingyuan	50,000
	jingyang	40,000		kuizhou	40,000
	xixiang	40,000		zizhou	40,000
	lintong	30,000		dajianlu	40,000
	mianxian	30,000		deyang	30,000
	yangxian	30,000		ningyuan	30,000
	gaoling	25,000		zhongba	30,000
Gansu	lanzhou	110,000		mianzhou	25,000
	yinchuan	85,000		liangshan	25,000
	qinzhou	75,000	Jiangsu	shanghai	1,500,000
	taozhou	62,000		suzhou	600,000
	pingliang	55,000		yangzhou	300,000
	huixian	40,000		nanjing	300,000
	liangzhou	40,000		zhenjiang	260,000
	didao	40,000		huaian	180,000
Zhejiang	hangzhou	650,000		wuxi	150,000
	ningbo	450,000		qingjiangpu	130,000
	shaoxing	400,000		changzhou	125,000
	wenzhou	140,000		xuzhou	125,000
	huzhou	100,000		songjiang	100,000
	jiaxing	100,000		taizhou	100,000
	quzhou	75,000		yancheng	90,000
	taizhou	60,000		changshu	88,000
	changshang	50,000		xinghua	80,000
	jinhua	50,000		suqian	65,000
	ruian	40,000		nantong	65,000
	yuyao	40,000		rugao	50,000
	dinghai	30,000		jiangyin	50,000
	shengxian	30,000		jintan	50,000
	tiantai	30,000		danyang	50,000
	chuzhou	25,000		dongtai	50,000
	huangyan	25,000		funing	40,000
	shimen	25,000		gaoyou	40,000
Jiangxi	nanchang	480,000		jiading	40,000
	ganzhou	200,000		muyang	40,000
	ji'an	120,000		dangshan	40,000
	fuzhou	100,000		andong	30,000
	jiujiang	85,000		baoying	30,000
	ningdu	60,000		haizhou	30,000
	xunzhou	60,000		kunshan	30,000
	raozhou	50,000		liuhe	30,000
	ruijin	50,000		liyang	30,000

province	city	No. of inhabitants	province	city	No. of inhabitants
	jianchang	50,000	Manchuria (Fengtian、Heilongjiang and Jilin)	shenyang	250,000
	nanfeng	50,000		niuzhuang	80,000
	zhangshu	40,000		andong	70,000
	yihuang	40,000		liaoyuan	70,000
	leping	40,000		jinzhou	60,000
	shicheng	40,000		dalian	55,000
	chongren	40,000		xinmin	50,000
	guangchang	30,000		liaoyang	40,000
	hekou	30,000		fuzhou	25,000
	le'an	30,000		gaiping	25,000
	jinxi	25,000		ha'erbin	200,000
Guizhou	guiyang	80,000		qiqihaer	50,000
	zunyi	70,000		hulan	30,000
	tongren	32,000		beituanlinzi	25,000
	anshun	30,000		jilin	83,000
	zhenyuan	30,000		changchun	70,000
	xingyi	30,000		ashihe	30,000
	qianxi	25,000		xincheng	30,000
Yunnan	kunming	100,000	Xinjiang	shufu	65,000
	gejiu	50,000		shache	60,000
	tengyue	44,400		Urumqi	60,000
	qujing	30,000		gucheng	45,000
	dali	26,700		ningyuan	45,000
	zhaotong	25,000		akesu	40,000
Anhui	wuhu	175,000		hetian	30,000
	anqing	100,000		suilai	26,000
	bozhou	80,000	Mongolia	Ulan Bator	38,000
	luzhou	70,000		jingpeng	30,000
	yingzhou	70,000			
	lu'an	50,000			
	ningguo	50,000			
	tunxi	45,000			
	datong	35,000			
	wuweizhou	35,000			
	suzhou	30,000			
	yixian	30,000			
	zhengyangguan	25,000			
	quanjiao	25,000			
	huaiyuan	25,000			
	nanling	25,000			

Source: National Christian Council of China edited (2007), *Chinese Christian survey in 1901-1920* (《中国基督教调查资料：1901-1920》) Beijing: China Social Sciences Press, appendix 7 'table of estimate of urban population in China'.