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From Divergence to Convergence: Re-evaluating the History Behind China's Economic Boom

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From Divergence to Convergence: Re-evaluating the History Behind China's Economic Boom¹

By Loren Brandt, Debin Ma, and Thomas G. Rawski²

Abstract

China's long-term economic dynamics pose a formidable challenge to economic historians. The Qing Empire (1644-1911), the world's largest national economy prior to the 19th century, experienced a tripling of population during the 17th and 18th centuries with no signs of diminishing per capita income. In some regions, the standard of living may have matched levels recorded in advanced regions of Western Europe. However, with the Industrial Revolution a vast gap emerged between newly rich industrial nations and China's lagging economy. Only with an unprecedented growth spurt beginning in the late 1970s has the gap separating China from the global leaders been substantially diminished, and China regained its former standing among the world's largest economies. This essay develops an integrated framework for understanding this entire history, including both the long period of divergence and the more recent convergent trend. The analysis sets out to explain how deeply embedded political and economic institutions that had contributed to a long process of extensive growth subsequently prevented China from capturing the benefits associated with new technologies and information arising from the Industrial Revolution. During the 20th century, the gradual erosion of these historic constraints and of new obstacles created by socialist planning eventually opened the door to China's current boom. Our analysis links China's recent economic development to important elements of its past, while using the success of the last three decades to provide fresh perspectives on the critical obstacles undermining earlier modernization efforts, and their removal over the last century and a half.

¹ In preparing this draft, we have received valuable advice from many colleagues, including Timothy Brook, James Cassing, Peter Lindert, LIU Pei, LONG Denggao, Deirdre McCloskey, Kenneth Pomeranz, Evelyn Rawski, Roger Sahs, Richard Smethurst, Werner Troesken, Rubie Watson, and participants in the May 2010 Asian Historical Economics Conference held at Tsinghua University in Beijing. The usual disclaimer applies. We welcome suggestions that will help us to improve this review.

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1. Introduction³

China's enormous boom, now well into its fourth decade, invites inquiry into the historical antecedents of an unprecedented surge of productivity and prosperity that lifted hundreds of millions from dire poverty, pushed the People's Republic to the forefront of global manufacturing and trade, and unleashed sweeping transformations of employment, education, urbanization, consumption, inequality, ownership, and many other dimensions of economic life in the world's most populous nation.

Earlier growth spurts in Japan, Taiwan, and Korea encouraged efforts to probe the domestic origins of recent dynamism in those economies.⁴ China's sudden and unexpected rush toward higher incomes invites similar questions. What circumstances enabled the hesitant reforms of the late 1970s⁵ which restored no more than a small fraction of the market arrangements stifled by socialist policies during the previous three decades, to launch the economy on a steep and durable growth path? How could several hundred million Chinese villagers escape from "absolute poverty" within 10-15 years following the onset of economic reform during the late 1970s with, if anything, declining external support as former collective institutions withered away? How did the number of so-called "township-village" (TVE) enterprises jump from 1.5 million to nearly 20 million, including many with substantial overseas sales, between 1978 and 1990 without encountering a shortage of capable managers and accountants? How did millions of firms conduct business, often on a large scale, without well-developed systems of commercial law or property rights?

While developments that arose from China's planned economy, including the expansion of human capital and the latent competition inherent in the emergence of relatively complete sets of manufacturing industries in most of China's 31 provinces, surely contributed to reform-era growth, this essay is written in the conviction that

³ Names of authors working in North America and Europe and publishing in English are presented Western style (e.g. Debin Ma). Names of Chinese and Japanese authors based in Asia and writing primarily in Asian languages appear in the East Asian fashion, surname first, with the surname capitalized for clarity (e.g. WU Chengming).

⁴ For Japan, see Thomas Smith (1959, 1988), Kazushi Ohkawa and Henry Rosovsky (1973), Kozo Yamamura (1997), and Akira Hayami, Osamu Saitō and Ronald Toby (2004); for Taiwan, see Limin Hsueh et al (2001); for Korea, see Dong-se Cha et al (1997).

⁵ Studies of China's economy during the reform era include Carl Riskin (1987), Chris Bramall (2000), Gregory Chow (2002), Justin Lin, Fang Cai and Zhou Li (2003), Barry Naughton (2007), and Brandt and Rawski (2008).

historical legacies rooted in the decades and centuries prior to the establishment of the People's Republic in 1949 continue to exert powerful influence upon the evolution of China's economy.

Prior to the industrial revolution, China led the world in both economic size and in many dimensions of technology. Writing before the onset of China's current boom, earlier generations of scholars (Marion J. Levy 1953, Albert Feuerwerker 1958) attributed China's subsequent reversal of fortune to the prevalence of nepotism, corruption, and other elements of Chinese social structure and behavior that prevented a vibrant response to European expansion of the sort attained during Japan's Meiji era (1868-1912). Subsequent events have overtaken these views; indeed, some observers now promote the opposite approach, attributing recent Asian prosperity to the very "Confucian values" formerly thought to have obstructed economic dynamism (see Weiming Tu 1996).

More recently, new work by James Lee, Li Bozhong, Kenneth Pomeranz, R. Bin Wong and others - often identified as the "California school" — has reshaped perspectives on the dynamism and development of the mid-Qing (1644-1911) economy. Their key argument, most clearly articulated in Pomeranz' influential book on *The Great Divergence* (2000), is that there was little difference in economic structure or per capita income between the most commercialized regions of China and Europe prior to the British industrial revolution. Furthermore, these regions shared an increasingly binding development constraint: land. Pomeranz attributes Britain's head start in industrialization to cheap coal and superior access through its colonies to land-intensive goods rather to any advantage linked to political, legal, or other institutional factors. These bold claims have kindled intense controversy among historians of both Asia and Europe, sparked efforts to expand empirical comparisons spanning Europe and Asia, and catapulted Chinese economic history from a narrowly specialized field to a central concern of newly emerging global historical studies.⁶

⁶ The breadth and intensity of the debate on the historical comparison of economic growth between China and the West is evident from the Economic History Net forum 'Rethinking 18th Century China' <http://eh.net/forums/ChinaSum.html> and in a debate between Andre Gunder Frank and David Landes at http://www.worldhistorycenter.org/whc/seminar/pastyears/frank-landes/Frank-Landes_01.htm

The present review⁷ seeks to illuminate the historical antecedents of recent Chinese dynamism, to specify the constraints that hindered the realization of China's latent potential prior to the start of the current growth spurt, and to track the gradual relaxation of these constraints during the course of the 20th century. Our analysis of China's current boom, as well as the modest advances of the late 19th and early 20th centuries, helps to illuminate the nature and impact of these earlier constraints. In this way, we believe that recent developments can deepen our insight into historical realities and vice-versa.

Several specific questions will help to unify much of what follows:

Why was China unable to capitalize on its earlier economic and technological leadership? Why did China become a laggard among major global economies by the 19th century, if not before?

Once the Industrial Revolution was well underway, a succession of countries in Europe, Asia and the Americas followed England's lead. Why was China slow to take advantage of economic opportunities linked to the dissemination of new technology and information?

How do we explain the post-1978 breakthrough? What distinguishes China's post-1978 economic success from its earlier efforts, including those in the late 19th-early and early 20th centuries as well as during the early PRC decades?

The first of these questions is the most difficult. We are more optimistic about tackling the second and the third. We anticipate – and here we differ with the views of the California school – that institutions will figure prominently in explaining both the long delay in the onset of rapid growth and the nature of China's recent growth spurt.

China's engagement with the world economy after 1978, an integral part of almost all narratives on China's success, is not the first time that the Middle Kingdom became linked to the international economy. When European explorers first arrived in Asian waters, they encountered well-established networks of water-borne trade connecting Chinese merchants and vessels with the rest of Asia (Andre Gunder Frank

⁷ Previous surveys include Albert Feuerwerker (1961, 1992), Frank H. H. King (1969) and Kent Deng (2000).

1998). Although cross-national silver flows strongly affected China's monetary system from the 16th century onward, the impact of international trade on domestic prices, incomes, organization and production appears smaller in this early period than in the late 19th and especially during the late 20th century. Indeed, overseas connections figure prominently in controversial work arguing that modern economic growth began during the early decades of the 20th century. In principle, similar linkages after the Opium Wars should have helped to relax constraints identified by Pomeranz and others as crucial in the context of the great divergence.

We begin this essay with a survey of the long-term evolution of China's economy. Since our review points to institutions as a crucial but neglected factor that can contribute to understanding both the failures and the triumphs of China's economy during the past two centuries, we then turn to an analysis of China's modern history from the perspective of political economy. Beginning with a summary of the more robust stylized facts of the imperial Chinese economy, we lay out a broad analytic framework for studying the political economy of China's pre-modern system that has links to China's post-1949 system both before and after the onset of the economic reform initiatives that began during the late 1970s. Finally, we briefly examine the growth spurt following China's post-1978 reforms with an eye to continuities as well as departures from historic patterns. An appendix reviews the quantitative materials that underpin research on Chinese economic history, highlighting the strengths as well as limitations of past research.

2. Long-Term Evolution Of China's Economy

China's economic history covers several millennia. Although certain features of the economic, political and social system span much longer periods, we will concentrate on the period since the mid-14th century encompassing the Ming (1368-1644) and Qing (1644-1912) dynasties and the ensuing Republican period (1912-1949), which ended with the defeat and exile of the Nationalist government led by CHIANG Kai-shek (JIANG Jieshi) and the establishment of the People's Republic of China in 1949.

Map 1 indicates the territories controlled by the Ming and the far larger dominions of the Qing emperors.⁸ The territory of today's People's Republic of China (PRC) approximates that of the Qing, except for the border changes in what are labeled "Xinjiang, Mongolia and Manchuria" in Map 1 (See Appendix).

2.1 Song as the Peak?

Scholars often view Ming-Qing economic history in light of the Song era (960-1279), jumping over the short-lived Yuan or Mongol reign (1279-1368). The Song, and its predecessor, the Tang (618-907), were times of sweeping change in China's economy and society, known to historians as the "Tang-Song Transformation" (*Tang Song biange*). This period brings the formation of institutions and structures that evolved into foundations of what contemporary historians think of as "traditional" or "pre-modern" China: the consolidation of a tax system based on registration and assessment of privately-held land; the regularization of a merit-based civil service staffed by commoners rather than aristocrats; and the use of written examinations to select candidates for official appointments. These political changes were accompanied by deep and long-lasting structural transformations in the economy: a shift from large landholdings to an agricultural regime based on small-holder ownership and tenancy, relaxation of restrictions and regulations on urban dwellers, the growing importance of markets for both goods and factors of production along with the penetration of money in commercial exchange, and the extensive development of private mercantile activity.⁹

The late Joseph Needham's massive volumes on *Science and Civilization in China* [summarized in Needham and Colin Ronan 1978] document the extraordinary spurt of innovation associated with the Tang-Song period, including breakthroughs in such diverse fields as gunpowder, the magnetic compass, movable type, paper, and shipbuilding. The significance of these innovations was widely recognized:

⁸ Although the map locates Taiwan outside the Qing borders, the Qing exercised effective control over the island between 1683 and 1895, when it passed into the hands of Japan.

⁹ Modern scholarship in this area begins with pre-war studies by Japanese scholars like NAITO Kōnan and KATŌ Shigeshi. Richard von Glahn's review of recent monetary studies (2004) cites an array of relevant work by Chinese, Japanese, and western researchers.

Printing, gunpowder and the compass: These three have changed the face and state of things throughout the world; first in literature, the second in warfare, the third in navigation; whence have followed innumerable changes, in so much that no empire, no sect, no star seems to have exerted greater power and influence in human affairs than these mechanical discoveries" (Francis Bacon, *New Instrument*, 1620).

Needham's works establish China as the global leader in many fields of scientific and technological endeavor until perhaps the 14th century. The question of why this technological superiority did not lead to an industrial revolution has become widely known as the "Needham puzzle" (Justin Yifu Lin 1995; Kent Deng 2003).

The combination of deep institutional change and technological progress (which may in fact be linked – see Francesca Bray (1994)) is seen as driving both quantitative and qualitative extension of economic activity. Some scholars, most notably, Eric Jones (1988), view the Song, particularly the era of Southern Song (1127-1289), as an early and remarkable episode of "intensive" growth – meaning increases in urbanization, marketed agricultural surplus, and per capita income. Kang Chao (1986, p. 56) asserts that urban residents accounted for more than one-fifth of the Southern Song population. A number of scholars see Song China as achieving a peak of economic achievement unmatched by subsequent dynasties.

The Song peak thesis is reflected in Angus Maddison's compilation of material on global economic aggregates, which we summarize in Table 1. Maddison portrays China's per capita GDP as flat or declining for the entire period from 400 to 1870 with the sole exception of the years from 1000-1500, to which he assigns an increase of 33 percent. European per capita GDP decreases between 400 and 1000, presumably reflecting the fall of Rome, but rises monotonically thereafter, overtaking China between 1000 and 1500.

While the Song peak perspective continues to receive scholarly support, most recently from William Guanglin Liu (2005),¹⁰ the quantitative underpinning of key elements of the Song success story remains fragile. Robert Hartwell's widely cited estimate of Song iron production rests on a single speculation-filled footnote (1962, pp.

¹⁰ Within Chinese academia, the greatest advocate of the Song peak thesis is Professor QI Xia and his group of students based largely in Hebei University; See QI Xia (1999, 2009).

154-155). Critics challenge the notion that the Song attained major agricultural progress, arguing that available documents do not give a clear picture of the extent of irrigated rice cultivation, the level of crop yields, or the size of the agricultural surplus. In a series of publications focusing on the area adjoining the lower reaches of the Yangzi River, China's most economically advanced region, during the Ming (1368-1644) and Qing (1644-1911) periods, Li Bozhong contests claims that advanced farming methods and high yields during Southern Song surpassed achievements in the subsequent Ming and Qing eras. In Li's view, key factors hailed as constituting the essence of the Song economic revolution – including the cultivation of the Champa rice variety, the diffusion of new agricultural tools and practices, and the intensification of agricultural production – may have appeared in the Song period but diffused only during the Ming and Qing.¹¹ ŌSAWA Masaaki offers further scepticism about what he calls the the "false image" conveyed by widely cited research on Song agriculture (1996, esp. pp. 236-240). Substantial urbanization presupposes high yields and large marketed surpluses. Without convincing refutation of critics like ŌSAWA and LI, claims of extensive Song urbanization, which have drawn a skeptical response (Albert Feuerwerker 1988, Yeh-chien Wang 1990), remain highly suspect.

2.2 Ming-Qing: Stagnation or Growth?

Despite ongoing concern that the Song peak thesis may arise from an erroneous conflation of qualitative and quantitative change, there is a vast literature that purports to explain China's fall from the heights of the Song, usually in the context of the prodigious demographic expansion that pushed population from under 100 million at the start of Ming (1368) to 400 million by the late 18th century. China's economy expanded alongside population, but output growth was mostly confined to the extensive margin, with only modest support from technical change. With no clear evidence of rising per capita incomes, the growth that did occur is often described as "Smithian" in nature, because of its link to increasing specialization and division of labor.

¹¹ For the critique of Song peak claims, see Li (2002, chaps. 5 and 6). Li (1998) lays out the author's analysis of Ming-Qing agricultural developments in the Lower Yangzi region.

Dwight H. Perkins' (1969) careful analysis of agriculture, which represented the bulk of the economy and absorbed a majority of the labor force, provides the strongest empirical support for this perspective. China's agricultural economy consisted of millions of small family farms, with average farm size by the 18th century less than 5 acres.¹² Focusing on grain production, which occupied upwards of 80 percent of total acreage, Perkins attributes long-term growth in agricultural output during Ming and Qing in roughly equal amounts to increases in acreage and higher yields, i.e. the extensive and intensive margins. Rising yields, among the world's highest at that time, in turn, arise from growing intensification of tillage enabled by an increase in labor supply per unit of land. This dynamic reflects the views of Ester Boserup (1965) in that population growth drives economic expansion by opening the door to increased cultivation of labor-intensive crops and greater use of multiple cropping and other labor-using techniques. While existing techniques spread across China's landscape, Perkins finds little evidence of technical change in Ming-Qing agriculture aside from the importation of new food crops (maize, Irish and sweet potatoes) and a modest expansion in irrigated area.

Subsequent studies of different regions, especially the prosperous, highly commercialized Lower Yangzi area near present-day Shanghai, have built on Perkins' picture of an economy that responds to slow increases in population density by creating new layers of specialization and division of labor that maintain living standards in the face of a declining man-land ratio. Exploiting the unique richness of historical materials pertaining to this part of China, Li Bozhong's (2000, 2010) study of the early industrialization of Jiangnan (referring to the southern portion of Jiangsu province, which occupies the heart of the Yangzi delta), for example, systematically reviews production growth in cotton textiles, food processing, apparel, tobacco, papermaking, printing, toolmaking, construction and shipbuilding in the Lower Yangzi during 1550-1850.

¹² Farm size was smaller in the south, reflecting the south's warmer climate, longer growing season, greater availability of water, and higher multiple cropping ratios. Land rental was also more common in the south, with estimates suggesting in upwards of a third of land rented (John L. Buck 1930, 1937).

2.2.1 Commercialization, domestic trade, market integration

Whether or not subsequent research upholds Kenneth Pomeranz' (2000) controversial view that pre-industrial living standards in China's Lower Yangzi region resembled those observed in leading segments of western Europe,¹³ historians have documented substantial economic and commercial advances which enabled the Qing empire to absorb massive population increases in excess of 150 million during the 18th century alone (Table 1).

Building on the considerable expansion of markets and commerce recorded under the Song (960-1279), some of which declined during the Mongol (Yuan) interregnum (1279-1368), the Ming-Qing era witnessed renewed expansion of commerce and growing commercialization of agriculture. Although much of this trade was local, especially for agricultural commodities, inter-regional trade likely expanded. Renovation of the Grand Canal in early Ming facilitated the northward shipment of tribute grain to the capital, provided a new channel for north-south trade.¹⁴ The sea route from the Lower Yangzi northward around the Shandong peninsula to Tianjin, "virtually abandoned" under the Ming, was revived during the Qing period and extended northward to connect with commodity flows along the Liao River in Manchuria (XU Dixin and WU Chengming eds., 2000, p. 166). The growth of what became the large middle-Yangzi river port of Hankou (now known as Wuhan) from "a desolate sandbank" during the Ming era to the "hub of a trade network linking Sichuan and Shaanxi [provinces] to central and south-eastern China" by 1813 reflects "the development of trade along the Yangzi" River during the Qing era (XU and WU 2000, p. 165; William T. Rowe, 1984).

Multiple studies trace the Qing trend toward deepening domestic commercial networks (for example Evelyn Rawski 1972, Gilbert Rozman 1974), which influential work by the late G.W. Skinner (1964) showed to consist of nested hierarchies of marketplaces, differentiated according to the periodicity of market sessions, the scale of

¹³ Robert Allen, Jean-Pascal Bassino, Debin Ma, Christine Moll-Murata, and Jan Luiten van Zanden 2011 dispute the claim of comparable living standards between Asia and Western Europe using real wages of unskilled workers in major urban centers. Pomeranz counters that in China, unlike Europe, the urban wages were below the incomes of (more numerous) owner-farmers. The controversy continues.

¹⁴ The Grand Canal was initially constructed during the Sui Dynasty (AD 589-616) and became a main inland artery that helped to forge the unification of the subsequent Tang and Song empires (QUAN Hansheng, 1990).

activity and the array of products and services transacted, that extended from the largest cities to distant and humble villages. Increases in the number of towns and markets were particularly evident in the densely populated delta regions surrounding modern-day Shanghai and Guangzhou (WU Chengming 2002, p. 186).

The observation by Han-sheng Ch'üan and Richard Kraus that Qing "official shipments of several hundred thousand *shih* over distances above a thousand miles could be planned, executed, and completed in a matter of weeks without putting an appreciable strain on the existing transport facilities of even ... comparatively backward" provinces demonstrates the scale and geographic extent of market operations.¹⁵

The analysis of price data for food grains, which local governments reported to central officials on a monthly basis, demonstrates the presence of substantial price integration of Qing grain markets, most notably in localities linked by low-cost water transport. Yeh-chien Wang, who initiated the collection and study of these materials, concludes that "early eighteenth-century China was, on the whole, comparable with Europe in terms of market integration"; subsequent analysis by Carol Shiue and Wolfgang Keller confirms this observation, and shows that the Lower Yangzi area achieved greater price integration than continental Europe, while England displayed the greatest development of grain price integration on the eve of the Industrial Revolution (Yeh-chien Wang 1992, p. 53; Carol H. Shiue and Wolfgang Keller 2007).¹⁶

2.2.2. International exchange before 1800.

Although the bulk of demand and sales involved purely domestic transactions, there was a small but significant international trade. Largely confined to China's coastal

¹⁵ Ch'üan and Kraus (1975, pp. 58-59). 1 imperial *shih* of milled rice weighed approximately 185 pounds (ibid., 98), so that 300,000 *shih* was equivalent to over 25,000 metric tons.

¹⁶ Empirical studies of grain market integration rely on grain price reports collected by the Qing government, which used standardized units of weight and measure to record quantities of grain and silver values. In reality, currencies, weights and measures were not uniform, but varied substantially across regions and occupations. The absence of detailed information about the conversion of local market transactions into standard units adds an element of uncertainty to this entire strand of inquiry. Frank H. King (1965) discusses the issue of currency variation.

and border regions, and periodically restricted by the state, most of this trade was intra-Asian, with China shipping manufactures (porcelain, silk) by sea to Southeast Asia and tea overland to Central Asia, while importing timber, spices, and monetary metals by sea and horses from Central Asia.¹⁷ The arrival of European traders in the early 16th century led to increased trade with Europe, both directly and through the gradual integration of European merchants into Asian trade networks. China's luxury exports such as silk, ceramics and tea, found new markets in Europe's expanding and increasingly sophisticated cities (Jan de Vries, 2008; Timothy Brook, 2010). Europe also supplied its own luxury products (for instance window glass, clocks, and coral), as well as metals and fabrics to Chinese buyers (Frank Dikötter 2006, p. 28). Data remain sketchy, but one percent of GDP appears to be a generous upper bound to China's trade ratio (imports plus exports divided by GDP) during the Ming and pre-1800 Qing period.¹⁸ Scattered evidence also suggests that prior to the growth of trade with Europe, overseas shipments may have claimed only a modest share of output from the main export industries.¹⁹ These exports, however, may have been more important measured from the perspective of the importing countries.

China's persistent merchandise trade surplus financed massive Chinese imports of New World silver. These imports were driven by several important factors including huge differences in the gold price of silver between China and the rest of the world (Dennis O. Flynn and Arturo Giraldez, 1994) and the rising commercialization and growth of the Chinese economy described above. China had limited deposits of precious metals and, after repeated misadventures with paper currency during the early Ming period (von Glahn 1996), a decided preference for hard money. In the context of

¹⁷ Gang Deng provides a detailed account (1997, Chap. 5).

¹⁸ China's Maritime Custom trade data begin in the 1850s; the first comprehensive set of national income estimates are for the 1930s (Ta-chung Liu and Kung-chia Yeh, 1965). Combined, they suggest that China's trade ratio may have been as high as 8-10% of GDP just before the Depression. Backward projection based on these trade data and reasonable assumptions for GDP growth puts this ratio at no more than 2 percent in 1870. Since trade surely outpaced output growth during the 19th century, we may suggest one percent of GDP as a generous upper bound for the trade ratio during earlier centuries.

¹⁹ Robert Gardella reports calculations by WU Chengming indicating that tea exports amounted to 23 percent of total output in 1840 (1994, p. 6). But tea exports carried by the East India Company doubled between 1786 and 1830, while export of Fujian tea to Russia increased by a factor of six between 1798 and 1845 (*ibid.*, 37-39) indicating far smaller export shares in the 18th century. Less detailed evidence for silk points in the same direction: Lillian M. Li shows that exports took up 55 percent of 1880 output, which totaled approximately 2.1 million piculs (1981, p. 100). Occasional figures suggest that, prior to 1800, silk exports were a tiny fraction of the 1880 total: Li cites sources reporting that Japan imported 3,000 piculs of Chinese silk "in an exceptionally good year" and that annual shipments to Mexico, another major outlet, may have totaled 10,000 piculs (*ibid.* 64-65). A picul is a measure of weight equivalent to 60.489 kg. or 133 1/3 pounds.

a bimetallic monetary system²⁰ in which copper was used for small daily transactions, and silver for the rest, the demand for silver grew. Richard Von Glahn (2003) estimates that in the 18th century, these imports may have exceeded a billion taels, which works out to an annual inflow equal to 0.24 percent of GDP.²¹ By 1640, these flows had eliminated major cross-national differences in the gold price of silver; thereafter, “silver continued to gravitate to the Chinese market ... because there was a huge number of buyers at a relatively stable world price” (Flynn and Giraldez 1995, p. 433). Significant price differentials persisted, however, with respect to other important agricultural and non-agricultural commodities.

2.2.3. Institutions and private organizations.

Informal networks and institutions played an important role in facilitating China’s long history of local and long-distance commerce. In addition to numerous studies of guilds (cited below), Fu-mei Chen and Ramon Myers (1978, 1989/1996) and Madeleine Zelin (1994) have shown how mercantile associations and customary law contributed to the formation of stable and reliable commercial practices. With clear parallels to Avner Greif’s (2006, 2008) work on Europe, Jean-Laurent Rosenthal and R. Bin Wong (2011) emphasize the crucial function of informal arrangements in connection with long-distance trade: when trade partners reside far apart, high costs of transport and communication prevent official courts from efficiently resolving disputes. Under these conditions, informal arrangements appear “not to palliate failed formal institutions but as complements that enables market exchange”.

2.2.4. Urbanization

This well-developed market network supported increasingly dense population settlements, particularly in prosperous, trade-oriented regions like the lower Yangzi area.

²⁰ Standard references on China’s monetary history include Eduard Kann 1962, Frank H. H. King 1965, and PENG Xinwei 1968.

²¹ These back-of-the-envelope calculations for the late 18th century assume a population of 250 million; annual per capita grain consumption of 3 *shi*; an average grain price of 2 taels per *shi*; a consumption basket in which grain accounted for 40 percent of total expenditure; and 90 percent of GDP going to consumption. Average annual GDP over the century then becomes $(3 \times 250 \times 2) / (0.4 \times 0.9)$ or 4,167 million taels. Average annual silver imports of 10 million taels thus amount to 0.24 percent of annual output.

Rather than giving rise to large urban centres, the Lower Yangzi region followed a distinctive pattern, forming clusters of market towns along the dense regional network of rivers, creeks, and man-made canals, with extensive geographic specialisation in the marketing and production of agricultural and handicraft products (LIU Shijie 1987). The resulting economic geography, with no clear boundaries between urban and rural districts or farming and non-agricultural activity, defeats standard measures of urbanisation. Authors like Gilbert Rozman (1974) and G. William Skinner (1977ab), who assign the label “urban” to settlements exceeding a fixed number of residents, may seriously underestimate the degree of urbanization, which LI Bozhong estimates to have reached 20 percent in Mid-Qing (2000, p. 414).

While LI, Pomeranz and others stress the efficiency of organizing non-agricultural production in the densely-populated countryside, there are alternative interpretations for these patterns. With China’s largest cities reportedly no longer growing, Kang Chao and others have stressed the role of a low and declining agricultural surplus, coupled with flexibility of rural families in their use of labor. Alternatively, and so far not considered, is the possibility that limited growth of cities reflects differential costs associated with urban locations, perhaps due to higher formal and informal taxation, weaker property rights, or greater exposure to official predation.

2.2.5. Finance

Networks of markets and trade in Ming-Qing China drew support from both formal and informal finance. The formal financial system was organized around traditional or “native” banks (*qianzhuang*) that were largely local in nature, but maintained links beyond their home regions. This system included a nationwide network (the “Shanxi banks,” whose name signified their roots in Shanxi province) that specialized in managing official funds and transferring funds over long distances (Andrea McElderry 1976, Randall Morck and Fan Yang 2011). These privately-owned institutions, whose owners faced unlimited liability, accepted deposits, issued loans, arranged interregional (and in some cases, overseas) remittances, and sometimes originated bank notes (which typically circulated only in local communities).

At the local level, “money shops” specialized in currency exchange (between copper and silver, between notes and hard currency, and among numerous local and trade-specific bookkeeping currencies) as well as currency valuation (i.e. facilitating transactions by verifying the fineness of un-coined silver or valuing strings of copper cash that included counterfeit or “clipped” coins). Pawnshops issued small loans against a variety of collateral, which might include agricultural crops, livestock, farm tools, clothing, jewels, or art objects. ABE Takeo places the number of rural pawnshops at 19,000 in the mid-18th century and 25,000 by the early 1800s, indicating an average of approximately 10 establishments for each of China’s counties (Madeleine Zelin 1991, p. 44).

Beyond these formal institutions stood a vast array of informal financial arrangements. Shopkeepers, tradesmen, and individuals served as regular sources of personal loans; relatives and friends provided funds on a more casual basis. The market for farm land provided multiple options permitting land-owning households and even tenant farmers to quickly convert land-use rights into cash. Transactions ostensibly involving the exchange of land or labor often included elements of lending or borrowing: contracts could specify initial deposits, and land rents or wages of long-term workers could be paid before or after the harvest (Loren Brandt and Arthur Hosios, 1996).

This system, especially its informal components, contributed substantially to the prosperity and expansion of China’s economy during the Ming-Qing era, providing sufficient funds to support gradual expansion of monetization and agricultural commercialization as well as substantial and growing volumes of local and long-distance trade. Widespread availability of personal loans, particularly against the collateral of land-use rights, cushioned untold millions of farm households against threats of extreme downward mobility arising from bad harvests, death, or illness.

Despite these arrangements, the cost of finance remained high. Although Chinese culture provided no philosophic or religious objections to money-lending, successive dynasties did enact (but rarely enforced) statutory limits on annual interest charges: 36 percent under the Ming, falling to 20 percent during Qing and the Republic (Zhiwu Chen, Kaixiang Peng and Weiping Yuan 2010). Such restrictions however did not shield Chinese households from elevated borrowing costs: historical materials such

as a recent compilation showing three centuries of rural interest rates in selected Chinese counties reveal no sign of the gradual decline in interest rates observed in Western Europe in the early modern era²² Ramon Myers' study of two north China provinces found that, aside from seasonal fluctuations, borrowing costs for rural households "appear to have been quite constant over a period of two hundred years" ending in the 1930s (1970, p. 243).²³ High Chinese rates may have reflected limited supply of capital under institutional constraints such as the lack of reliable third-party enforcement, especially outside one's immediate locale, along with tenure arrangements favoring small-holders, who could reclaim mortgaged land by repaying long overdue debts, pushed loan rates upward (Debin Ma 2011b, KISHIMOTO Mio 2011).

The efforts of millions of households to use land rights as a vehicle for maintaining and, if possible, improving their socio-economic status produced a variety of outcomes, some of which became extremely complex. Figure 1 presents material discovered by LONG Denggao demonstrating that a single plot of land could have over 100 separate owners, some with shares as small as 1/608. Given the irregular income stream associated with farming, the rich array of transaction arrangements that mimicked many contemporary financial instruments allowed average farmers to "financialize" land use rights (including tenancy as well as ownership) – their premier store of wealth – to provide liquidity, stabilize their livelihood and improve their welfare. The same features also facilitated payment of land taxes.

During the Qing era, formal and informal financial arrangements provided sufficient liquidity and credit to support substantial expansion of rural commercialization, a growing volume of domestic trade, and also the absorption of massive population increases with no apparent decline in living standards. Along with these substantial accomplishments, it is equally important to emphasize what Chinese finance did not

²² See PENG et al 2009 for China, For Western Europe, see Donald McCloskey and John Nash 1984; Sidney Homer and Richard Sylla 2005.

²³ Surveys conducted during the 1930s showed a wide range of interest rates for personal loans; modal values for annual interest costs ranged from 20-30 percent in relatively commercialized coastal regions like Guangdong, Fujian, and Zhejiang to higher figures approaching and sometimes exceeding 50 percent in poorer and less commercialized interior provinces like Henan, Suiyuan, and Ningxia (Loren Brandt and Arthur Hosios, 2009; PEGN et al 2009). Philip Huang cites reports from the 1930s showing that rural households in north China borrowed at monthly rates between 1.2 and 3 percent, "with most loans made at 2 percent" per month (1985, p. 189).

achieve. There was no market for financial assets, not even for government debt, which, prior to 19th century treaty-port system, were negotiated informally with wealthy merchants. (See ZHOU Yumin 2000, pp. 277-287).

In this economy, land was the sole asset suitable for passive wealth-holding: landowners could entrust their holdings to managers or bursaries and expect them to collect rents and pay taxes (e.g. MURAMATSU Yūji 1966). The reasons for the complete absence of financial assets of the sort developed in the Netherlands in the 16-17th century and subsequently in England in the 18th century and elsewhere will emerge during the course of our survey.

2.2.6 Households and human capital

FANG Xing describes China's Qing farm economy as a "dual system combining farming and handicrafts for household consumption and for commercial sale" (quoted in WU Chengming 2002, p. 187). Detailed studies on the rural economy of North China by Ramon Myers (1970) and Philip Huang (1985), of Fujian and Hunan by Evelyn Rawski (1972), and of the Lower Yangzi region by Huang (1990) and LI Bozhong (1998, 2000, 2010a), among others, give a clear picture of a diligent, ambitious, market-oriented peasantry that responded quickly to opportunities for economic advance.²⁴ Villagers were deeply involved in marketing: in the more commercialized coastal and riverine districts, many households made daily trips to local markets (Madeleine Zelin 1991, p. 38). Individual villagers could easily venture into petty trade. Frequent use of brokers and go-betweens allowed resourceful and reliable individuals to enter the world of commerce with no prior accumulation of wealth. With no official restrictions on personal mobility, peddlers and merchants were free to shift operations to promising locations; records of numerous *huiguan*, local organizations of merchants from distant places, attest to the importance of commercial sojourning (He Bingdi 1966). Chinese

²⁴ John L. Buck's survey results from 1921-1925, which reflect the acceleration of commercialization following the introduction of the telegraph, steamships, and railways during the previous half-century, are illustrative: Buck found that 2,866 farms in seven provinces sold slightly more than half of their output (by value) – 43.5 percent in four northern provinces, 62.8 percent in Anhui, Zhejiang, Fujian, and Jiangsu, and 52.6 percent overall (1930, p. 199).

guilds united people who shared lineage or native-place ties as well as common occupations.²⁵

Written documents pervaded economic life at every level of Chinese society. Summarizing work by Myron Cohen and others, Madeleine Zelin observes that (1991, pp. 40-41):

“Even in remote villages during the Qing period, written contracts were used in the hiring of labor, sale and rental of property, distribution of land-use rights, marriage and concubinage, and the sale and indenture of human beings. Societies for the maintenance of irrigation works ... also used written agreements ... ordinary people used written agreements to pool and redistribute resources ... [e.g.] partnership contracts ... revolving credit associations were common ... associations ... were formed to build bridges and schools, endow ferries, and repair roads ... [This] encouraged the rise of a whole genre of literature directed specifically at educating people on the practical side of business and trade.”

The practical environment of village life placed a considerable premium on literacy and numeracy, both of which reached substantial levels. Historical links between education and social mobility reinforced this tendency, as did popular culture: the heroes of widely circulated stories include scholars like ZHUGE Liang as well as monarchs and swordsmen. Evelyn Rawski (1979) shows that strong household demand for education, coupled with low prices for teaching services and for books, produced levels of literacy in Qing China that outstripped much of preindustrial Europe. Official interactions with the rural populace, including the collection of land taxes and the registration system intended to promote public security, routinely used written materials. A substantial publishing industry churned out agricultural manuals and other practical materials as well as cheap editions of popular novels (Cynthia Joanne Brokaw and Kai-wing Chow 2005).

John L. Buck's rural surveys, conducted during the late 1920s and 1930s, found that 45% of males over the age of seven and 2% of females had received some schooling (Evelyn Rawski 1979, pp. 6, 18). Recent work on age-heaping, i.e. the tendency for uneducated people to give their ages in round numbers, also suggest levels of numeracy in the Chinese population of the 19-20th centuries amongst the

²⁵ Work on guilds includes John Burgess 1928/1966; Hosea B. Morse 1932, NEGISHI Tadashi 1951, William T. Rowe 1992, and Christine Moll-Murata 2008.

highest in the pre-modern world (Joerg Baten et al 2010). Recent scholarship also points to the widespread practice of book-keeping and accounting at the levels of households, business, lineage trusts and guilds as an attestation to the high level of commercial orientation and numeracy in early modern China (Robert Gardella 1992, Weiping Yuan and Debin Ma 2010).

“The historical record includes ample evidence that Chinese villagers deployed their knowledge of reading and arithmetic for purposes of economic gain. There was a brisk market for cheap books containing “sample contract[s] ... forms for selling and mortgaging lands, houses, or livestock; tenancy contracts; [and] loan agreements” (Evelyn Rawski 1979, p. 114); agricultural handbooks included discussions of household allocation choices couched in language reminiscent of modern price theory textbooks (Evelyn Rawski 1972, pp. 54-55).

Detailed studies of rural economy suggest that the concept of “homo economicus,” invented by thinkers with little knowledge of life in Asia, fits well with the historical realities of Chinese village life. G. William Skinner’s study of Chinese migrants in Thailand reinforces this conclusion. In contrast to Thai natives, Skinner commented that Chinese migrants hailed from a different universe: “... a grimly Malthusian setting where thrift and industry were essential for survival.” Ideology reinforced this divergence: Chinese struggled for wealth to preserve family and lineage continuity, while Thai norms frowned on “excessive concern for ... material advancement.” Differences in proverbs tell the story: for the Chinese, “Money can do all things,” but for the Thai, “Do not long for more than your own share” (Skinner 1957, pp. 97, 92, 93, 95).

Chinese recognition of economic rationality has a long history. Anticipating the *Wealth of Nations* by nearly two thousand years, Han Fei-tzu (ca. 280-233 BC) used language that precisely matches Smith’s description of individual behavior:

“in the case of workmen selling their services in sowing seeds and tilling farms, the master would ... give them delicious food and by appropriating cash and cloth make payments for their services. Not that they love the hired workmen, but that ... by so doing they can make the workmen till the land deeper and pick the weed more carefully. The hired workmen ... speedily pick the weed and till the land ... Not that they love their master, but that ... by their so doing the soup will be delicious and both cash and cloth will be paid to them. Thus, the

master's provisions and the workmen's services supplement each other as if between them there were the compassion of father and son. However, their minds are well disposed to act for each other because they cherish self-seeking motives." (Han Fei-tzu, n.d.).

China's enduring tradition of commercial activity and market participation involving both elites and villagers provides a striking counterexample to Karl Polanyi's contention that, prior to the English enclosure movement, "the alleged propensity of man to barter, truck, and exchange is almost entirely apocryphal ... [and that] no economy prior to our own [was] even approximately controlled and regulated by markets" (1944, pp. 43-44).

2.2.7. Demography

Along with studies of commerce, historians have also explored individual demographic behaviour, reporting patterns sharply at odds with assertions about Chinese population dating back to Thomas Malthus and expressed in the more recent work of Phillip Huang (1985, 1990), Kang Chao (1991) and others. James Lee, Feng Wang and others emphasize the importance of preventive (i.e. voluntary) checks on population growth, arguing that China's unusual combination of near-universal female marriage and relatively low birth rates reflects the widespread incidence of female infanticide, primitive contraception and abortions, intentional spacing of births, and adoptions (Lee and Wang 1999; William Lavelly and R. Bin Wong 1998; LI Bozhong 2003, pp. 137-240).²⁶

2.2.8. State capacity

Research by Madeleine Zelin, R. Bin Wong, Pierre Etienne-Will, Peter Perdue and others revises long-standing views about Qing state capacity, pointing to the

²⁶ This field continues to evolve. Critics question both the suitability of the data used by Lee and Wang and their conclusion that Chinese women had lower fertility than women in other pre-modern societies (see the summary in Matthew H. Sommer 2010, pp. 101-103). In a comprehensive review of work by James Lee and others, Osamu Saito (2002), the Japanese demographer, notes the presence of preventive checks and low birth rates across East Asia, despite contrasting patterns of family system and geographic mobility. Saito's summary is a sharp departure from an earlier consensus (for example James Nakamura and Matao Miyamoto 1982) that viewed China's population as subject to Malthusian positive checks in contrast to Tokugawa Japan's "precocious" demographic transition.

emergence of purposive and competent Qing state action in fields as diverse as fiscal management, famine relief, water control, and military activity.²⁷

2.2.9. Summary of pre-1800 economic evolution under the Ming and Qing

Recent research on a millennium of economic evolution moves away from the view of the “Song peak” and instead postulates a lengthy historical development process replete with gradual and cumulative progress in many dimensions prior to the end of the 18th century.²⁸ This perspective shares much in common with research on England that downplays any structural or revolutionary break separating the “pre-industrial” era from the “Industrial Revolution,” highlighting instead the long period of slow cumulative change that preceded the industrial surge beginning in the late 18th century. This new approach also includes a global dimension: instead of a long-term reversal of China’s fortune, the California school claims that, particularly in the advanced Lower Yangzi region, Qing development of commerce and market institutions, as well as the standard of living, compared favorably with circumstances in Northwestern Europe through the end of the 18th century.

This new narrative portrays China’s advanced regions, particularly the Lower Yangzi, as more alike than different from their European counterparts, particularly England. Pomeranz (2000) sees both as facing similar constraints emanating from pressures on land and natural resources that threatened to curtail growth. Pomeranz sees imports of land-intensive goods from newly-acquired colonies and Eastern Europe, together with Britain’s fortunate endowment of cheap coal deposits, as key determinants of divergent economic trajectories for Europe and China after 1800. This approach relegates other political, social, and institutional differences to the background. Its claims typically rest on indirect, often micro-based evidence relating to household consumption, access to luxury goods, productivity in agriculture and other sectors, urbanization and so on. As the Appendix shows in some detail, this supporting evidence is prone to the same selection biases that bedevil the Song peak thesis.

²⁷ Relevant works include Zelin (1984), Will, Wong and Lee (1991), and Perdue (2005).

²⁸ This recasting of the Qing has been accompanied by reinterpretation of the Ming, for example by Timothy Brook (1999, 2010).

2.3 The Great Divergence

Whether the great divergence between west European and Chinese levels of per capita income occurred in the 14th or the 18th century, the problem of explaining China's long economic decline relative to the industrializing West and then to Japan during the 19th and early 20th centuries, and subsequently to a number of dynamic East Asian economies during the third quarter of the 20th century, remains unresolved. Different authors point to a variety of causal mechanisms operating during multiple periods.

Kenneth Pomeranz' widely cited study (2000) offers explanations for two distinct patterns of divergence: within China itself, and between leading regions in China and Europe.

On the domestic side, he argues that the dynamism and economic prominence of the Lower Yangzi region rested on domestic trade flows that brought shipments of grain, cotton, and other materials to Lower Yangzi destinations in exchange for shipments of textiles and other finished goods. As demographic expansion and rising productivity strengthened the economies of China's peripheral regions, the Lower Yangzi faced higher prices for material imports and reduced demand for its handicraft and manufactured exports, changes that Pomeranz sees as having weakened the regional economy. On the international side, as noted earlier, Pomeranz (2000) emphasizes similarities between the economic level and economic institutions of the Lower Yangzi and advanced regions of Western Europe during the 18th century, and attributes England's rise to global economic leadership to two specific factors: cheap coal and access to ample supplies of land-intensive products from its colonies.

An earlier generation of scholars attribute China's relative economic decline to a general drop-off in innovative activity in the Ming and Qing compared to the Song. Although researchers led by the late Joseph Needham (Needham and Ronan 1978) have compiled monumental documentation of Chinese scientific accomplishments and Benjamin Elman's recent work forcefully rejects the "scholarly consensus about the alleged failed history of science in China" (2005, p. 420), researchers assuming that late imperial China was unable to develop "even some homegrown modern science" (Mark

Elvin 2010, p. 152) have offered a host of economic and political explanations focusing on forces influencing the demand and supply for new technologies and innovation, the key source of intensive growth

On the demand side, some analysts view the long and sustained growth of China's population as the source of Malthusian pressures that led to a declining wage-rental ratio. This, in turn, promoted the adoption of labor-using technology and labor-absorbing institutions that effectively crowded out labor-saving and capital-using technical changes that might have promoted higher labor productivity and rising per capita incomes. This dynamic is explicit in the work of both Kang Chao (1977, chap. VII) and Philip Huang (1985, pp. 191-195) who argue, for example, that widespread development of handicraft textiles discouraged the emergence of more capital-intensive factory production. Similar pressures constrained the growth of cities.

Mark Elvin offers a similar perspective:

"In late traditional China economic forces developed in such a way as to make profitable invention more and more difficult. With falling surplus in agriculture, and so falling per capita income and demand, with cheapening labor but increasingly expensive resources and capital, with farming and transport technologies so good that no simple improvements could be made, rational strategy for peasant and merchant alike tended in the direction not so much of labor-saving machinery as of economizing on resources and fixed capital. Huge but nearly static markets created no bottlenecks in the production system than might have prompted creativity. When temporary shortage arose, mercantile versatility, based on cheap transport, was a faster and surer remedy than contrivance of machines." (1973, pp 314-315).

On the supply side, many authors have linked declining interest in science among China's educated elites (a notion explicitly rejected by Elman 2005) to a slowdown in technical change. The former is sometimes related to a shift in Chinese thinking: Elvin detects "a change in the attitudes of philosophers towards nature" which meant that "Interest in systematic investigation was short-circuited" so that "There were ... no advances in science to stimulate advances in productive technology" (1973, p. 204). Elman himself notes that the transmission of Western scientific knowledge was hampered by the demise of the Jesuits, by the growing scientific prominence of Protestant regions with few links to China, and by the reluctance of both Protestants

and Catholics to translate materials about the solar system or evolution that seemed to contradict Christian theology (2005, pp. xxxii, xxxiii, 350).

Justin Lin (1995) postulates two sources of innovation: experience, and science-based experimentation. For the former, the probability of innovation is directly related to population size, which helps explain why the great civilizations of early antiquity (Mesopotamia, Egypt, India, and China) appeared in areas favorable to agriculture that could support large populations. The latter however required innovations based on science and experimental methods, which Lin contends developed less fully in China than in Europe; following others, he attributes this to skewed incentives that encouraged China's most able youths to pursue Confucian education and examination success in the hope of entering the ruling bureaucracy.

Robert Allen (2009) and others dismiss this view, arguing that scientific progress played only a modest role in Europe's advance. Elvin agrees, saying that "Chinese technology stopped progressing well before basic scientific knowledge had become a serious obstacle" (1973, p. 298). Joel Mokyr (2002, 2009), though, insists that while basic science may have a limited role in the First Industrial Revolution, it became increasingly important and indeed, indispensable to the second and third waves of industrialization that followed. Mokyr argues that what distinguishes the Industrial Revolution and modern economic growth from prior phases of pre-modern growth spurts is its sustainability powered by continuous and cumulative growth in scientific knowledge, which itself is partly a social outcome of the early modern Enlightenment.

The role of the state in scientific and technological innovation is a source of debate. Historically, the Chinese state contributed to generating and diffusing innovations, for example in hydraulics, which may have compensated for limited private-sector dynamism. Mokyr (1990) argues for a major post-Song retreat in the Chinese state's predisposition toward, and contribution to developing new technologies. He sees the Ming-Qing state as somewhat inhospitable to innovation, paralleling the rise in more conservative social forces. Such changes, if they occurred (Elman 2005, working with far deeper knowledge about China, would deny Mokyr's premise) may have arisen from concerns about possible dislocation associated with technical and economic change, a concern that certainly figured in periodic official efforts to limit external trade.

This shifts the focus to China's political institutions, specifically, to the capacity of the political unity that prevailed throughout most of Ming and Qing to choke off political competition. European cities enjoyed considerable autonomy, developing their own charters and civil codes. Intense competition between cities and states allowed individuals to relocate to favorable environments – opportunities that were largely absent in the unitary Ming-Qing polity, which stifled the sort of institutional change that is widely seen as beneficial to economic development in Western Europe (Mokyr 1990, chap. 9).

The historiography on the role of the traditional Chinese state and institutions has long reflected overly simplistic theoretical frameworks based on oriental despotism (Karl Wittfogel 1957/1976) or theories of class struggle (for example Wang Ya'nan 1981/2005). Recent literature has partly corrected these limitations by emphasizing that benevolent imperial rule provided a framework that taxed the peasantry lightly, protected private property rights and interfered little in the operation of well-established markets in land and labor.²⁹

Our political economy discussion (below) seeks to provide a unified framework for analyzing long-term economic trends by systematically pursuing the economic implications of Ming-Qing political structures. While the traditional framework of oriental despotism may be misleading and overly pessimistic, we contend that the state – especially its absolutist features and highly centralized political and fiscal regime – figures prominently in the formation of property rights, contract enforcement and incentives, and therefore in the economic dynamics of imperial China.

In particular, the classic dilemma of government credible commitment as posed by Douglass North – economic growth requires a strong state to secure property rights, but an overly powerful state becomes a potential threat to the security of private ownership – recurs throughout the two millennia of Chinese dynasties. Our framework focuses on the implications of China's enormous size and population growth for the agency costs inherent in decentralized governance structures, fiscal capacity, and a set of complementary institutions, most notably, property rights, which North and others

²⁹ Kenneth Pomeranz (2000) and R. Bin Wong (1997) discuss factor markets and taxation; Debin Ma (2011) reviews China's traditional legal institutions.

(North 1994; North and Robert Paul Thomas 1973) see as crucial ingredients in the emergence of modern economic growth.³⁰

Recent contributions, including imaginative and insightful studies focused on the domestic economy, on China's overseas economic links, and on comparison of China's economy with European counterparts, have added richness and depth to the field of Chinese economic history. But China's stunning economic rise beginning in the late 20th century raises new questions: now that recent events oblige us to recognize the dynamic capabilities inherent in Chinese social formations and economic structures, why did realization of this vast potential occur only in the past three decades? How did partial and limited reform initiatives manage to initiate China's ongoing boom? In particular, why is there no sign of accelerated growth during the closing decades of the Qing era, roughly from 1870-1910, when China experienced substantial openness to domestic market forces and to international flows of trade and investment, substantial influx of engineering and organizational technology, opportunities to populate fertile new territories in Manchuria and to repopulate farmland abandoned during the fiercely contested Taiping rebellion (1854-1865), as well as considerable internal stability under a regime that demonstrated modest interest in reform? Whatever the obstacles to accelerated growth during these decades, why did China's greatest growth spurt occur more than a century after her opening?

We see institutional analysis as a promising avenue for understanding both the obstacles to modern economic growth during the late Qing period and the erosion of these constraints during the course of the 20th century. Our approach follows recent efforts of economists, notably, Daron Acemoglu, Simon Johnson and James A. Robinson (2005) to elucidate the contribution of institutional structures and institutional change to long-term economic growth.

The task is not simply to explain China's delayed industrialization, but rather to account for a multi-stage process that includes long periods of limited advance, followed by an unprecedented surge of economic expansion. It is this issue that the following sections propose to address. Our approach will rely on the perspectives of

³⁰ Our approach has much in common with recent work by Tuan-hwee Sng (2010) on the link between geography and fiscal capacity in a world of pre-modern communication and transport. We also echo ideas from the influential works of JIN Guantao and LIU Qingfeng (2011) widely publicized within China during the 1980s.

political economy and institutional analysis, methodologies that, in our view, have much to contribute and that recent studies of Chinese economic history have often neglected.

3. The Political Economy Of The Traditional Chinese State

With basic political structures and social arrangements displaying substantial continuity throughout the Qing era, which lasted from the mid-17th to the early 20th centuries, how can we connect generally stable institutional formations to highly variable economic outcomes? While our survey of recent research reveals many areas of controversy, there is no disagreement about overall trends in the Qing economy, in which a generally prosperous 18th century gave way to a period of growing economic difficulty after 1800 during which China was notably slow to grasp new opportunities radiating from the British industrial revolution. Extending the task to encompass potential links between Qing institutions and China's recent growth explosion broadens the challenge confronting efforts to develop a cohesive analysis of long-term economic outcomes that can explain how stable institutions first stimulated, but later constrained Qing economic expansion, and how Qing legacies affected China's economic performance after the dynasty's fall in 1912.³¹

What follows represents an initial step in this direction. We begin by postulating the existence of a few key structures. We then follow the logic of incentives and constraints to sketch out a heuristic model of China's traditional political economy. The result is a surprisingly comprehensive framework that illuminates the underpinnings of Qing stability and success, pinpoints mounting tensions and constraints that may have gradually reduced the system's effectiveness, and reveals specific circumstances that hindered efforts at fundamental reform.

We focus on interactions among four key actors: the imperial household, the bureaucracy, local elites, and the masses. The bureaucracy refers to imperially

³¹ These challenges are evident in Francis Fukuyama's recent work (2011). Recognizing many similarities between Qing and PRC political institutions, but observing high-speed growth only after 1978, Fukuyama contends that: "What China did not have was the spirit of maximization that economists assume is a universal human trait." He goes on to claim that "It is far likelier that cultural attitudes towards science, learning, and innovation explain why China did so poorly in the global economic race in previous centuries, and is doing so well at the present, rather than any fundamental defect in political institutions."

appointed officials; Chung-li Chang [ZHANG Zhongli], focusing on the 1880s, tabulated 23,000 officeholders – 2,600 in the imperial court, 13,000 provincial and local officials, and 7,000 military officers (1962, p. 38). The local elite includes retired imperial appointees and graduates of provincial and metropolitan civil service examinations who were eligible for imperial appointments but held no formal posts, as well as holders of lesser degrees and non-degree holders who possessed sufficient land, education, wealth or reputation to merit recognition as part of the local (or even national in the case of prominent salt merchants) elites, along with their extended families.³²

While all institutions are in principle endogenous, we take as given important political institutions of the late Song that had evolved over the previous millennium and were to endure until the collapse of the Qing regime in 1911.³³ After describing these enduring legacies, we explain how incentives surrounding these key institutions shaped the behaviour of the four key groups that populate our model: the throne, bureaucracy, gentry, and commoners. The results illuminate fundamental dimensions of political economy under the Chinese imperial system.

3.1 Key Political Institutions

From the 10th century on, much of what is now regarded as China was under nearly continuous unitary rule.³⁴ Map 1 depicts the borders of the Ming (1368-1644) and Qing (1644-1911) empires. Although Qing military and diplomatic prowess extended their territory far beyond the boundaries of Ming rule, we simplify the following analysis by assuming an empire of fixed size. We also posit the presence of three key institutional features, each dating at least from the Song (960-1279) era,

³² Chung-li Chang [ZHANG Zhongli] tabulates the ranks of gentry, which in his study includes all holders of both earned and purchased examination degrees, at 1.09 million before (i.e. about 1850) and 1.44 million after (i.e. about 1870) the Taiping rebellion (1851-1864). Assuming an average of five persons per gentry household, he concludes that the gentry population amounted to approximately 1.3 percent “of the whole population ... in the first half of the nineteenth century” and to “well over seven million ... [or approximately] 1.9 percent of the total population” after the defeat of the Taipings (1955, pp. 111-112, 139-141). Focusing on the 1880s, Chang concluded that gentry households, while comprising roughly two percent of the Qing population, received 24 percent of national income, and enjoyed per capita disposable incomes approximately 17.7 times the comparable figure for commoners (1962, pp. 326-329).

³³ Our approach with respect to these political institutions of the late Song largely follows the well-known Naito thesis expounded by the Japanese scholar NAITO Konan, summarized in Hisayuki Miyakawa 1955.

³⁴ Debin Ma (2011) traces the long history of Chinese unification.

which we take as given or exogenous: central and unitary imperial rule; a hierarchical, meritocratic system of staffing the imperial bureaucracy; and a land-based fiscal system. We briefly examine each of these before pursuing their larger implications.

The consolidation of political control in the hands of the Song emperors represents an important departure from the preceding four or five centuries, during which the power of the throne was checked by a relatively autonomous imperial cabinet and by regional aristocrats. By the beginning of Song, absolute power had become vested in the emperor. Moreover, there were no institutional constraints on the Emperor other than a vaguely defined principle of legitimacy emanating from the so-called “mandate of heaven.” As Ray Huang explains in the context of Ming:

None of the deterrents to unlimited exercise of imperial power – including Confucian morality, reverence for the standards set up by imperial ancestors, public opinion, or the influence of senior statesmen – had the effect of law. If the emperor chose to defy all these and was determined to exercise his absolute power to the full, there was no way of checking him (1974, p. 7).

With the elimination of an aristocracy or any other autonomous intermediary social or political groups, governing the empire’s vast territories required a bureaucratic structure that extended beyond the imperial household. China’s administrative needs included border protection, internal security, provision of public goods, and the collection of sufficient tax revenues to finance these activities as well as the consumption of the imperial court.

From the 8th century, bureaucratic recruitment became increasingly impersonal and meritocratic. Candidates for official positions were primarily selected from successful graduates of a standardized progression of periodic civil service examinations open to most male commoners. Examinations took place at the county, provincial and national levels. Successful candidates received degrees according to prefectural and provincial quotas, which meant that imperial officials were recruited nationwide, in numbers roughly proportional to each province’s population (MIYAZAKI Ichisada 1976, Benjamin Elman 2000).

Examination contents were rooted in Confucian ideology, which itself reflected the ideal of a hierarchical, patrimonial structure with the emperor at the top.³⁵ Successful candidates (often called degree holders) commanded immense prestige; they enjoyed lifelong tax exemptions and legal immunity. These men constituted a non-hereditary elite whose welfare was intimately tied to the survival and success of the imperial regime. A traditional poem eloquently sketches the connection between learning, wealth and power that the examination system imprinted in the consciousness of Chinese households (MIYAZAKI 1976, p. 17):

To enrich your family, no need to buy good land:
Books hold a thousand measures of grain.
For an easy life, no need to build a mansion:
In books are found houses of gold.
Going out, be not vexed at absence of followers:
In books, carriages and horses form a crowd.
Marrying, be not vexed by lack of a good go-between:
In books there are girls with faces of jade.
A boy who wants to become a somebody
Devotes himself to the classics, faces the window, and reads.

The system of imperial examinations offered the prospect of upward social mobility, possibly over several generations, to commoner households. Coupled with the “rule of avoidance,” which proscribed officials from serving in their home county, prefecture, or province, and the frequent rotation of incumbent officials, the examination system endowed the imperial state with both talent and legitimacy.

³⁵ This concept of the state is in many ways an extension of the Confucian ideal of a patriarchal household. With the elimination of hereditary aristocracy, the transition from feudalism to central rule extended the stand-alone imperial household (家) into the national sovereign (国). Indeed, the unity of individual, family and state is encapsulated in the enduring Confucian adage that the enjoyment of universal tranquility requires self-cultivation, proper household management, and benevolent rulership (修身 齐家 治国 平天下). The literal translation of the Chinese character for nation-state (国家) is “state-family” or what Max Weber (1951/1964) described as a patrimonial or “familistic” state.”

In principle, the emperor commanded property rights over all factors of production. Imperial ownership of land and labor is expressed by the traditional notion of 'Wangtu wangmin (王土王民, king's land, king's people/all land and all people are owned by the sovereign)', which appeared in The Book of Songs compiled during the age of Warring States (403-221 B.C.) and persisted throughout the imperial period.³⁶ Despite the emperor's theoretical ownership, imperial rulers often assigned land to individual households in return for payment of taxes. By the end of Tang (618-907), the state began to relinquish control and regulation of land ownership, leading to the gradual emergence of a system under which private owners held *de facto* ownership of land and assumed personal responsibility for the payment of land taxes, which became the cornerstone of imperial revenues. Thus *de jure* imperial property rights gave way to *de facto* rights to the collection of taxes. In parallel fashion, private labor markets gradually replaced systems that had formerly required households to provide labor services to the state at prescribed intervals.

3.2 Toward a Heuristic Model

With absolute hereditary power and without formal constraint on its rule, the biggest threats to China's imperial household came from external invasion or internal insurrection. Rebellions were an enduring feature of Chinese history. A well-known admonition to the Tang emperor to the effect that people can support or upend rulers just as water can float or overturn a boat provided a constant reminder of the ever-present danger of insurrection. Indeed, Confucian ideology long railed against excessive extraction as posing greater threats to commoners' livelihood than devouring tigers and venomous snakes (see the classic tale of the snake-catcher by the great Tang dynasty Confucius scholar-bureaucrat Liu Zhongyuan).

External security required tax revenues to finance defence spending. In addition, the state needed to support the imperial household and finance the costs of running the bureaucracy as well as public goods expenditures. Concerns about internal

³⁶ KISHIMOTO Mio (2011) summarizes imperial ownership and the nature of traditional Chinese property rights.

rebellion, however meant monitoring the amount and distribution of taxation to ensure a satisfactory level of income and welfare for the populace.

Countless examples illustrate the potential for violent tax resistance. Madeleine Zelin recounts a Qing episode in which a newly appointed magistrate, seeking to collect overdue land taxes in Shanghai county, ordered the arrest of defaulters, including a headman initially assigned to pursue tax evaders. The result was chaos:

“while a mob attacked the magistrate’s deputy,” the wife of the arrested headman committed suicide. When “the magistrate, accompanied by an entourage of yamen runners, went on a tour of inspection ... a large crowd led by [relatives of the deceased woman] ... stoned the ... magistrate’s retinue and drove the magistrate out of town ... Similar riots also broke out ... in An-fu hsien [county] in Kiangsi [province], after the magistrate [of that district] personally directed the collection of old tax debts” (1984, p. 255).

China’s fiscal system was centered on the taxation of privately-owned land. Data for 1753, a year in which, according to Yeh-chien Wang, official fiscal data were “more reliable and complete” than at other times, show land taxes accounting for 73.5 percent of officially-recorded revenue, with the balance coming from the salt tax (11.9 percent), native customs (i.e. taxes on internal and foreign trade, 7.3 percent) and miscellaneous taxes (7.3 percent).³⁷ For simplicity, we assume a fixed stock of taxable land, so that total fiscal revenue depends on the official tax rate on a unit of land and the size of bureaucracy devoted to tax collection. Government revenue was increasing in both: raising the tax rate generated more revenue, as did adding more tax collectors. Fiscal administration also involves expenditures: adding tax officials increases the government’s wage bill and outlays on maintaining tax offices.

In this very simple setting, the problem facing the Emperor is to determine the tax on land and the size of the bureaucracy to maximize net fiscal revenue (total tax collection less administrative costs), subject to leaving farm households with a satisfactory level of after-tax income. In this quest, the Emperor needed to consider indirect, agency costs that arise in any hierarchical organization because of informational asymmetries and imperfect monitoring. Agency costs were especially

³⁷ Wang (1973, pp. 68, 80). The dominant share of land tax in total revenues persists throughout the Ming and Qing dynasties. Guanglin Liu (2005) and others find that commercial or indirect taxes formed a larger share of tax revenue during the Song era than during Ming-Qing.

pertinent in China, where imperially-appointed officials were entrusted to govern far-flung regions linked only by networks of slow pre-industrial transport and communication.³⁸

As imperial agents, local officials were expected to treat taxpaying households equitably and to provide full and honest accounts of the amounts collected. But, like governments everywhere, China's bureaucracy often veered toward the pursuit of self-interest. The problem was further compounded by the limited official fiscal allocation for local government during Ming and Qing, which forced local officials to impose informal levies unsanctioned by any imperial decree simply to maintain their offices and perform their duties. Such conditions made it difficult for both external monitors and the bureaucrats themselves to separate what might be called "public-interest corruption" from peculation intended to secure illicit personal gains. As we will show, officials employed a host of malpractices to pillage the public purse, exaggerating the severity of harvest shocks, overstating the extent of tax arrears, colluding with local landholders to remove land from the tax rolls, or simply diverting public funds for their own benefit.

The land tax system created sharp conflicts between local officials and land-owning households, including local elites, who often held substantial acreage. Tax collectors often bullied ordinary households, for example by manipulating weights and measures to extract payments in excess of the legal tax obligation. The prevalence of unofficial tax-farming provided ample opportunity for local officials to divert excess revenues for their private benefit. Commoners resisted such impositions (and also sought to escape taxation) through violent tax resistance and by allying themselves with local gentry. The gentry used their elite status and the dependence of understaffed local administrations on their active cooperation as levers to reduce or even escape tax obligations, typically with the connivance of local officials.

These circumstances meant that the intended and actual outcome of efforts to collect land taxes differed widely, and in several dimensions. Some land-owners, particularly small-holders without the protection of elite patrons, were squeezed by the

³⁸ Prior to the advent of railways, travel from the capital to Shenyang required 30 days, to Xi'an or Wuhan 50 days, to Nanjing nearly 50 days, to Guangzhou 90 days, etc. (Joseph B.R. Whitney 1970, p. 47).

collectors, and ended up making payments that exceeded their statutory obligation. Gentry landowners, as well as commoners enjoying their patronage, often persuaded or bribed local officials accept payments amounting to substantially less than the statutory amount. Officials' need for gentry cooperation to successfully execute routine administrative responsibilities made it difficult for magistrates to resist gentry pressures for informal tax relief. Finally, there was considerable revenue leakage from the tax system, as clerks, runners, and officials siphoned public funds into private purses.

Chinese emperors, keenly aware of these difficulties, established institutions aimed at limiting the impact of agency costs. Confucian ideology, which prescribed codes of behaviour for all social groups, including officials, acted to promote upright behaviour even in the absence of effective monitoring from the center. Frequent rotation of officials, as well as the "law of avoidance," which barred officials from serving in their home districts, aimed to direct official loyalties toward the throne. The Censorate, a branch of the central bureaucracy paralleling the organization of the six major ministries and five military commissions, dispatched roving observers to serve as the emperor's eyes and ears by circumventing routine official channels to report episodes of official malfeasance directly to the throne.

These internal checks, which entailed additional administrative costs, could not fully resolve the conflicts inherent in the centralized hierarchy. The Censorate itself was plagued with corruption, as is its contemporary counterpart.³⁹ Formal bureaucratic posts often evolved from personal appointments in which the emperor assigned trusted lieutenants to the task of improving the center's grip on outer layers of administration. Over time, these positions merged into the formal bureaucratic structure, leading to the assignment of fresh cohorts of inner court personnel to the (now enlarged) tasks of monitoring and control. This gradual multiplication of bureaucracy, which arose from internal dynamics unrelated to population growth or territorial expansion, contributed to what some historians have referred to as the "externalization" of the inner bureaucracy (QIAN Mu 1966, p.44, WANG Ya'nan 1981/2005 pp. 48-49).

³⁹ A 2010 news report noted that "a former top anti-corruption official in east China's Zhejiang Province, was sentenced to death. . . for taking bribes." See http://news.xinhuanet.com/english2010/china/2010-09/09/c_13486543.htm.

Writing in 1896, LIANG Qichao, a celebrated intellectual and reformer, noted this self-weakening aspect of the imperial bureaucracy, commenting that as rulers cannot trust their officials, they set up multiple layers of bureaucracy to check one other. In the end, nothing gets accomplished as no one takes responsibility for anything. Moreover, lower level officials become more interested in pleasing their superiors than in serving the people (1896/1984, pp. 27-31). Liang's observations anticipate G. William Skinner's observation that "Chinese history saw a secular decline in governmental effectiveness from mid-T'ang [i.e. from the mid- to late 8th century] on to the end of the imperial era" as well as the findings of modern theorists who show how lengthening a hierarchy by adding new supervisory layers increases agency costs and generates organizational diseconomies of scale (Skinner 1977b, p. 19; Jean Tirole 1986; R. Preston McAfee and John McMillan 1995).

These agency costs defy precise specification, but represent some combination of informal taxation on individuals and households, rent extraction by bureaucrats, and lawful taxes that went unpaid as a consequence of elite manipulation. Formal land taxes impinged primarily on the income and welfare of ordinary farm households. Informal taxation, bureaucratic extraction and elite tax avoidance undermined the financial position of both the emperor and the non-elite populace. Importantly, the size of agency costs limited the Qing system's potential to increase the level of formal taxation on land.⁴⁰

In a slightly more complicated setting, the Emperor not only had to set the formal tax rate on land and the size of the bureaucracy devoted to formal tax collection, but also had to set the number of personnel monitoring the bureaucracy, all with an eye to maximizing formal fiscal revenue (net of collection and monitoring costs), but subject to an insurrection constraint.⁴¹ This constraint represents the necessity, reinforced by

⁴⁰ While agency costs constrain the ability to collect formal tax revenues, higher tax rates probably lead to increased levels of agency costs as local elites intensify their efforts to avoid taxation, thereby increasing the burden on commoner households and probably raising collection costs as well.

⁴¹ In a dynamic setting, we could represent policies as designed to maximize the discounted present value of the imperial household's welfare, implying an important role for imperial time horizon in policy-making. The more dynastic the emperor's view, the longer the time horizon and thus the lower the discount rate used in these calculations. In Mancur Olson's (1982) framework based on the analogy of stationary and roving banditry, extending the ruler's time horizon would make the throne's interests more encompassing and less predatory, thereby contributing to a "virtuous equilibrium" of low extraction and high mass welfare.

Confucian ideology, of allowing sufficient after-tax income to focus popular attention on cultivation rather than revolt. The resulting net revenue can provide for security, administrative costs, supporting the Imperial household, and public goods.

3.3 What Kind of Political Equilibrium Emerged?

This simplified framework offers surprisingly powerful insight into a range of outcomes, including the role of the state in the Chinese economy, the nature of state-society interactions, and the trajectory of the Chinese economy that we may describe as the political equilibrium of the Chinese imperial regime. In what follows, we look at taxation, the size and activities of the state, the nature of property rights in land, informal taxation and corruption, the vested interests of the gentry, and the role of the legal system. We apply the term “equilibrium” because the implied outcomes were historically stable, mutually reinforcing and extremely difficult to alter, short of major systemic shocks imposed from outside.

3.3.1 Low formal taxation, small bureaucracy and limited state scope of state activity

High agency costs associated with administration of the empire and concerns about insurrection steered imperial China toward outcomes built upon modest formal taxation, a small official bureaucracy, and a correspondingly limited scope of non-military activities financed from the public purse.

After rising during the early years as the new Qing dynasty re-established order, formal tax revenue expressed in silver taels remained fairly constant between 1700 and 1850, averaging around 36 million silver taels annually, of which approximately 70 percent came from taxes on land.⁴² With stable revenue and substantial growth of population, per capita tax collections fell steadily: By 1850, per capita revenue was less than half the level for 1700. Nominal revenues rose sharply in the late 19th century, but the increase was modest in real terms. The share of government revenue in total

⁴² The Qing monetary system included multiple silver taels, which typically represented 35-40 grams of pure silver. For details, see Frank H.H. King (1965) and Eduard Kann (1975).

output during Qing was also low: Yeh-chien Wang finds that late 19th-century land taxes represented 2-4 percent of the produce of the land in most areas, although they may have consumed a larger share in the prosperous Yangzi delta region. Total government revenue from all sources amounted to roughly 2.4 percent of net national product in 1908 (Debin Ma 2011; Yeh-chien Wang 1973, pp. 80, 128, 133), suggesting that tax revenues remained well below five percent of total output throughout the Qing period.

Historical compilations summarized in Table 2 indicate that tax revenues under the Song and Ming dynasties exceeded those in the Qing period, both in aggregate and especially in per capita terms (Guanglin Liu 2005). While the Song revenue figures are subject to the qualifications noted earlier, the ordering implied by the data in Table 2 seems consistent with information on the size of Chinese armies during the three dynasties (IWAI Shigeki 2004, p. 33).

Figure 2 displays trends in nominal, real, and per capita fiscal revenues during the Qing dynasty. Nominal revenue showed little fluctuation for approximately 200 years beginning in the early 18th century.⁴³ Population growth and inflation produced an early decline in real and per capita revenues, followed by trendless fluctuation during the first half of the 19th century. All three nominal revenue measures rose during the final half-century of Qing rule, with per capita revenue in the early 20th century regaining levels recorded during the initial period of Qing rule.

Comparative data shown in Table 3 demonstrate the Qing dynasty's limited fiscal capacity. During the late 18th century, per capita revenues of the leading European states, expressed in grams of silver, were 15-40 times comparable figures for Qing China. England's government revenue actually surpassed the comparable figure for the immensely larger and more populous Qing Empire! The data also show that per capita revenues, which remained roughly constant over long periods under the Qing, tended to increase elsewhere. Expressing the tax burden in terms of the number of days an unskilled urban laborer would have to work in order to earn the equivalent of the

⁴³ Sources for Figure 2: fiscal data are from IWAI Shegeki (2004, p. 37) and HAMASHITA Takeshi (2006, p. 73); population from Angus Maddison (2007); grain prices are from Yeh-chien Wang (1992).

average individual tax payment provides an alternative view of the Qing empire's modest fiscal capacity.

Limited revenues and the prospect that enlarging the bureaucracy would undermine administrative effectiveness meant that the size of the bureaucracy lagged far behind the growth of population. Indeed, the number of counties (*xian*), units ruled by magistrates who occupied the lowest rung of the official hierarchy, hardly changed after Han (206 BC-220 AD) times. Despite a vastly larger population, Qing China had only 1,360 counties compared to 1,180 under the Han and 1,230 under the Song (Skinner 1977b, p. 19). Limitations on the size of the bureaucracy help explain why the official administrative apparatus of the Qing never penetrated below the county level. With a near-static administrative structure, population growth meant that an average Qing county had perhaps six times the population of a typical county during the Han and more than triple the inhabitants of an average Song county. This increased the administrative burden facing local magistrates and magnified their dependence on the active cooperation of local gentry, which in turn reinforced the pressures mandating a low-tax regime, as efforts to increase taxes would place local officials in direct conflict with the economic interests of the same local gentry whose advice and cooperation was needed to manage local affairs and preserve social order.

A 19th-century example from Xinhui, Guangdong illustrates the helplessness of local officials in the absence of gentry cooperation. When the Qing state imposed *likin* (*lijin*) taxes on domestic trade, the local palm-leaf guild raised no immediate objection. But this seemingly obscure group effectively blocked subsequent efforts to increase the *likin* tax rate:

"When the guild resisted ... there was nothing the magistrate could do but request a waiver [exempting the guild from the higher *likin* rates] ... He was unable to survey the palm-growing areas to tax them directly, because the guild and its supporters refused to cooperate. He was unable to muster community support ... when he called a meeting of local gentry ... no one came" (Susan Mann 1987, p. 130).

Similar conditions existed elsewhere. Local magistrates, while bearing the emperor's imprimatur, were lone outsiders facing tightly-knit communities that often included several hundred thousand residents. The reality of gentry power was inescapable; this emerges most strikingly from the decision of the Kangxi emperor (r.

1662-1722), among the strongest Qing rulers, to abandon a proposed empire-wide cadastral survey in the face of resistance on the part of local elites. The outcome was continued use of obsolete Ming land registers coupled with a permanent freeze on tax quotas – “a gigantic concession to local gentry and landlords ... throughout the empire ... [under which] gentry landlords received a permanent tax exemption on wastelands brought under the plow” (John F. Richards 2003, p. 124). Kangxi’s successor, Yongzheng (r. 1722-1735) sought to incorporate informal taxes and surcharges into the formal tax base in an effort to restrain local corruption and stem the leakage of resources from the public purse. Here again, top-down imperial reform proved incapable of surmounting resistance from local magistrates, who valued the discretion (and opportunities for rent extraction) associated with the traditional system and their gentry allies. Since informal local revenues were essential to the normal functioning of local governance, the information asymmetry surrounding these local revenue flows protected them against extraction by higher-level officials (Madeleine Zelin 1984, chap. 7, Debin Ma 2011a).

Under these circumstances, well-informed emperors who understood the dangers of excess tax demands on commoners as well as the revenue leakage arising from official peculation and gentry manipulation might reasonably conclude that raising the rate of land taxes was not a practical option. Given the relatively stationary size of the imperial household and the imperial desire for dynastic longevity, Chinese imperial ideology evolved toward fixing a revenue target for normal years (in the absence of harvest failure or external crisis). This ideology was famously encapsulated in the Kangxi emperor’s 1712 proclamation fixing nominal land taxes in perpetuity at a time when Manchu conquest of China was largely complete (Ma 2011a).

Like all revenue-constrained pre-modern empires, Qing public spending was limited to programs that addressed fundamental issues of external and internal security. Expenditures on the military and border defences protected the largely sedentary agrarian populace. The central government’s outlays on civilian public goods focused on measures intended to stabilize and increase agricultural productivity – for example investments in water control and irrigation – and on the operation of official granaries that could stave off famine and hence maintain public order when natural disaster struck (Peter Perdue 1987; Pierre-Etienne Will, R. Bin Wong and James Z. Lee 1991;

Lillian M. Li 2007). Such programs contributed directly to mass welfare and thus supported the longevity of the imperial system. They also relied on local contributions, highlighting both the need for magistrates to secure the cooperation of local elites and the difficulty of reconstructing a complete picture of government revenues.

China's large size, limited revenues, long communication lines, and small bureaucracy, influenced the nature as well as the scale and scope of official activity. A late 19th century commentator described the focus of the central government as "registering and checking the actions of various provincial administrations [rather] than. . . assuming a direct initiative in the conduct of affairs" (William F. Mayers 1897, pp. 21-22). Subsequent research supports this characterization even in arenas of central dominance. Man Bun Kwan finds that the Board of Revenue, which bore major responsibility for managing the imperial salt monopoly, was "primarily a transmission center of documents and repository for ledgers. . . [that] rarely initiated policy (2001, p. 32). Frank King notes that even in the monetary sphere, a central government responsibility, "the Board of Revenue could not be the source of a coherent monetary policy. It had no power to inspect the quality of provincial coins ... It could comment on provincial memorials only if they were referred to the Board ..." (1969, p. 34). Transforming these bureaucratic structures into effective promoters of economic growth would require major administrative changes that appeared only in the 20th century.

3.3.2 A shift to private property rights in land and commerce

In contrast to earlier regimes that had assigned land to households that were capable of delivering taxes,⁴⁴ China's Tang rulers shifted the main source of tax revenue from labor to land at the end of the 8th century. From the perspective of tax collection, this put a premium on establishing clearly defined property rights in land. Accordingly, the state began to relinquish control and regulation of land tenure. While the emperor retained theoretical control over all land, this new arrangement contributed to the

⁴⁴ The well-known equal-field system (均田制) used during the Tang (618-907 AD), for example, allocated land (授田) to adult males on the basis of their productive capacity, upon which the state levied the so-called triple tax (租庸调).

emergence of de-facto private land-ownership and fostered the rise of a family-based owner-tenant system of agricultural cultivation that dominated the economy of imperial China for the next millennium.

Commercial life experienced a similar transformation, as earlier systems “of administered trade became increasingly arduous and expensive to enforce ... a process of trial and error ... punctuated by the periodic reimposition of controls ... [led to] a general withdrawal by government from the minute regulation of commercial affairs” and a notable expansion of privately established markets and private mercantile activity (Skinner 1977b, pp. 24-25 – note the obvious parallel with China’s recent reform experience).

The emerging private property rights over land typically included residual claimancy; the right to rent, sell or mortgage; as well as the right to bequest. Recognition of these rights allowed private owners rather than the state to capture the benefits associated with rising productivity, new land reclamation, and population growth. If households became unable to farm the land themselves, the opportunity to transfer their land use rights via sale or rental allowed them to capture the returns to their investments in the land.

Although de-facto private property rights in land date back to much earlier periods, the Tang reforms encouraged the development of increasingly deep and sophisticated markets for land in which layers of ownership and user rights could be purchased, sold, rented, mortgaged, and divided.⁴⁵ Ownership of a single plot could be vested in separate parties endowed with rights over the surface and sub-surface respectively – the so-called *yitian liangzhu* (two lords to a field) or even *yitian sanzhu* (three lords to a field) system – rights that could then be sold, leased, or used as collateral. Tenants as well as owners could freely buy, sell, lease, or mortgage their access rights. Figure 1 (above) illustrates the scope for complex division of ownership under this system.

⁴⁵ Land transactions were often recorded in written documents, many of which survive in libraries and archives. MURAMATSU Yūji (1966) and ZHANG Deyi (2009) provide examples of documents recording land transactions.

3.3.3 Informal taxation, rent extraction, and property rights

Land taxes collected from rural communities were mostly remitted to higher levels of the official bureaucracy. Madeleine Zelin estimates that county magistrates retained approximately one-fifth of official collections to meet local needs. Much of the retained funds went to fulfill imperially-mandated expenses, for example provisioning military forces and maintaining imperial relay stations. What remained fell far short of what was needed to maintain government offices, pay the magistrate's own salary, and support the required complement of secretaries, clerks, runners and personal servants.⁴⁶ This reflects both the state's limited fiscal resources and the center's deliberate effort to limit the growth of local power bases by constraining locally available fiscal resources.

To make ends meet, sub-national officials of necessity relied on informal or extralegal surcharges (苛捐杂税). The necessity of informal taxation, which was "an established practice in the mid-eighteenth century as it was necessary for keeping public administration at work" (Yeh-chien Wang 1973, p. 72), blurred the distinction between legitimate and corrupt official behavior, and thus complicated efforts to detect and deter the diversion and embezzlement of public funds. The weak financial position of local governments increased the dependence of magistrates on contributions and cooperation from local elites, as the following passage attests:

The local elite, consisting of scholar-officials and rich landowners, played a crucial role here by helping the magistrate with his duties; from the maintenance of water conservancy works to the organization of local defense corps. It is generally agreed that the magistrate, as a non-native of the region where he held office, was to a certain extent dependent on the local elite's advice in carrying out his magisterial duties, as well as on their support in the leadership of local people. . . . In "reward" for its "efforts," the local elite was in turn also in a position to enjoy certain tax exemptions, and moreover, to falsify land registers and population reports, or, even, to appropriate tax revenue which normally would have passed to the state (Harriet Zurndorfer, 1989, pg. 3).

⁴⁶ T'ung-tsu Ch'ü indicates that county-level governments employed several hundred (and in some cases, several thousand) clerks, several hundred (and in some cases, over 1,000) "runners" (i.e. messengers, guards, policemen and other menial employees), and 10-30 personal aides (1962, pp. 39, 56, 59, 77). Some of these personnel received salaries from the magistrate; others received no salary, but imposed irregular fees on citizens who sought access to official services.

Madeleine Zelin provides a detailed description of these informal revenue sources, which ranged from the levying of various surcharges, manipulation of weights, measures and currency conversion in tax collection, falsifying reports, shifting funds across fiscal years, and concealing tax revenue from commerce and from newly reclaimed land to extracting contributions and donations from local farmers and merchants. Zelin chronicles an episode in 18th-century Jiangsu province in which an investigating magistrate discovered widespread embezzlement of official funds: “there was not a prefecture, *chou* or *hsien* [county] in the region in which [secret records providing a true picture of land-ownership and tax payments] ... were not compiled” (1984, p. 240).⁴⁷ Provincial officials solicited gifts from their bureaucratic subordinates and skimmed funds by inflating the cost of official purchases (1984, pp.46-71). Reliance on informal local taxation and the employment of unofficial staff for public administration also often led to the privatization of public services.⁴⁸

Revenue constraints at all levels of government led to a common pattern: officials granted merchants, guilds, or kinship groups unwritten but well understood and enforceable commercial property rights in return for a stream of tax revenues, in what amounted to a form of tax-farming. In describing these arrangements, Eiichi Motono notes that government “granted commercial monopolies to groups of merchants in return for the delivery of supplementary taxes” and refers to the “economic principle that no one could acquire the right to do business without paying. . . tax” (2000, pp. 3-4, 64).

Examples abound. Ping-ti Ho comments that every Qing-era salt merchant “owed his position to government recognition” and notes that “the right to sell salt was farmed out to those merchants who were financially able to pay the salt gabelle [tax] in advance” (1954, pp. 142, 136). Tianjin transport workers “received government permission to monopolize transport in a particular area. From the Kangxi to the Xianfeng reigns (1662-1861), the Qing government issued ... notices of official approval to the transport guilds. Under the Guangxu emperor (1875-1908), successive

⁴⁷ Franklin L. Ho (1967) reports similar practices in early 20th-century Hebei province.

⁴⁸ Ch'ü T'ung-tsu's classic book (1962) on Qing local government offers a vivid portrayal of county clerks extracting bribes with the threat of delaying legal cases submitted, runners demanding “chain-release money” from the families of accused criminals who might otherwise be chained or tortured, retaining part of the goods recovered from thieves, or sometimes resorting to outright extortion of wealthy residents. Even the porters guarding the magistrate's office expected tips for accepting documents or warrants.

magistrates issued 11 orders supporting the special privileges of the guilds" (1986, p. 117). During the late 19th century, Susan Mann finds a "familiar historical pattern ... [in which] local trade organizations began to purchase the right to collect [recently imposed] *lijin* taxes from their own members by ... paying tax quotas in advance" (1987, p. 111, with emphasis added).

These accommodations typically involved agreements between officials and commercial groups (rather than individual merchants). Mercantile groups selected leaders whose authority was recognized by both officials and fellow merchants. Officials expected these "head merchants" to deliver tax revenues and control the actions of their associates. In return, officials stood ready to utilize their power – either directly or by allowing authorized merchants or their agents to act as informal official deputies – to block initiatives that threatened the operations of the "legitimate" or "insider" merchants (and hence the established revenue streams). Ho observes that "the interventionist state ... protected the vested interests of all salt merchants" (1954, p. 142).

These arrangements equipped mercantile groups with substantial control of their trades – at least within the territories administered by cooperating officials. Management of specific trades was often farmed out in this fashion to mercantile guilds, which typically allowed newcomers to enter their business provided that they obeyed guild rules, which might include provisions related to currency, weights and measures, product quality, apprenticeship, wages, piece rates, and, of course, tax payments.

"Mercantile leaders – the so-called "head merchants" - wielded considerable power: their special status provided ready access to officials; they could enact and enforce rules and sanction non-conforming members with fines or even expulsion from the officially-recognized trade body - the commercial equivalent of capital punishment. Thus in the salt trade, "merchant chiefs and head merchants formed a powerful ruling clique ... head merchants exerted powerful control over distribution and sale of salt" (Ho 1954, pp. 138, 141).

Such practices, which essentially amounted to official sales of market control in exchange for informal revenues, had important implications. The presence of

entrenched commercial interests with backing from local or even central officials may have acted as a long-term brake on innovation. As we show below, the hostility of incumbent official-merchant coalitions became a major impediment to commercial and industrial innovation during the second half of the 19th century, when the newly-established treaty port system began to accelerate the inflow of new products, technologies, and business methods.

The prevalence of irregular taxation at all levels of government helps to explain the apparent contradiction between the low rates reflected in the receipts of the Board of Revenue (see Tables 2 and 3 above) and the popular image of Ming and Qing as rapacious regimes. The Kangxi-era governor-general of Shaanxi and Gansu placed extra-legal surcharges at 40-50 percent of the official tax quota (Zelin 1984, p. 73). Yeh-chien Wang argues that such imposts were less severe, at least in 1753, a year for which the historical record is particularly rich; Wang concludes that “non-statutory surcharges amounted to as much as the statutory ones, which generally ranged from 10 to 15 percent of the [authorized tax] quota” (1973, p. 69).

Information about the overall incomes of office-holders provides added perspective on the impact of the tax system. While estimates of unrecorded payments are always hazardous, the carefully documented work of Chung-li Chang [Zhang Zhongli] which concludes that the total incomes (including receipts from landholding and other non-official activities) accruing to imperial appointees during the 1880s may have amounted to twenty times the official payments associated with their positions. Chang also concludes that annual informal income obtained by sub-provincial office-holders approached 60 million silver *taels*, equivalent to three-quarters of the central government’s recorded annual revenue of 80 million *taels* during the 1880s (1962, 40, 42, 328). While the absolute magnitude of such fiscal extraction on a per capita basis was still relatively modest compared with contemporary taxation in England and the Netherlands (Table 3), the informal and extralegal nature of these tax collection may have imposed disproportionately high distortions on capital- or contract-intensive activities.

Chang’s figures, however crude, also reveal the capacity of officials at all levels to extract wealth from the private sector and help to explain the extraordinary loyalty of Chinese elites to what was, after all, a conquest dynasty led by the descendants of

Manchu invaders whom most Chinese perceived as “barbarians.” At the national level, the throne’s relations with leading merchants, especially the beneficiaries of officially-established monopolies, presented an intricate minuet of ad hoc tax assessments, imperial confiscation and “voluntary” contributions to state coffers.⁴⁹ It seems likely that similar circumstances, but with lower stakes, prevailed within regional and local jurisdictions.

3.3.4 Law, economic security and patronage economy in Ming-Qing china

Formation and disposition of property rights are closely linked to the legal system, which, as in any nation, exerted substantial influence over economic activity in Ming-Qing China. Chinese emperors faced the task of governing a vast land mass with a tiny corps of officials. To maintain long-term political stability, the throne required sufficient flexibility to strike quickly and powerfully at potential threats. To prevent such threats from forming, emperors sought to eliminate possible nodes of countervailing power - aside from the gentry, who, as noted earlier, were indispensable bulwarks of the status quo.

In the legal sphere, these requirements point to a system that is fully controlled by the official hierarchy while remaining subject to imperial discretion. Historically, this is exactly what we observe. In China, as in Rome, the emperor is the source of law. The Tang dynasty established an elaborate and systematic criminal code that was largely retained by subsequent dynasties. Modifications arose primarily from occasional imperial interventions that extended or contravened existing codes; such actions constituted new laws or sub-statutes that served as precedents for subsequent decisions (Shiga et al pp. 12, 120-121; Su Yegong 2000, chap. 9).

Under normal circumstances, imperial penal codes were strictly enforced, with decisions on legal disputes involving corporal punishment mandatorily reviewed within the bureaucratic hierarchy (and, in capital cases, by the emperor himself). County

⁴⁹ Ping-ti Ho 1954, Man Bun Kwan (2001, pp. 43-47); Michael Greenburg (1951, pp. 52, 63, 66-67) illustrate such transfers. Canton merchants involved in foreign trade contributed 3.9 million taels (plus unrecorded sums) during 1773-1832; Liang-huai salt merchants contributed 36.4 mill taels to the imperial treasury during 1738-1894 (Ho 1954, p. 154).

magistrates also ruled on civil and commercial matters that entailed no corporal punishment. Both the procedures and rulings at county-level courts were more akin to intermediation than adjudication. Clearly, broad swathes of economic and social life were governed by private customs regulated and enforced by family, clan, and village elders, by local gentry, and by mercantile associations (e.g. Fu-mei Chen and Ramon Myers 1978, 1989/1996). Unlike Western Europe, where the efforts of autonomous legal professionals contributed to the formalization of private customs and rules and legal clarification of property rights, the Chinese imperial hierarchy viewed non-official legal specialists with suspicion. Legal secretaries who assisted county magistrates were not on the official roster, but were personally hired and paid by the magistrates. The Ming code banned “incitement to litigate”; the Qing went further, criminalizing the occupation of “litigation master,” a profession remotely resembling modern-day lawyers (Melissa Macauley 1998). This explains the curious co-existence of the proliferation of private customs and rules with what many Western observers viewed as the absence of formal civil or commercial law in imperial China (Jerome Bourgon 2002, Debin Ma 2011b).

The lack of legal formalization in commercial and civil matters introduced an element of uncertainty into private ownership. Private property rights in Ming-Qing China were genuine and substantive under normal circumstances. From the official perspective, however, private ownership remained secondary to or derivative from the political standing of the property holders. Faced with the possibility, however remote, of confiscatory intervention that no legal response could ward off, property holders felt it necessary to seek shelter under an umbrella of political power (Deng Jianpeng 2006, p. 69). Despite elaborate and generally predictable informal arrangements for recording, protecting, and transferring rights over land and other tangible assets, the foundation of property rights in imperial China, particularly in the sphere of commerce, rested on politics rather than law, with implications for economic change during the 19th century and beyond to be discussed later on.

For property holders in imperial China, risk reduction necessitated some accommodation with officialdom, which for most Chinese meant group rather than individual action. These efforts extended the elaborate network of what Andrea McElderry (1995, p. 28) describes as “fiduciary communities” within which individual

operators could limit risk and transaction costs, to create zones of official protection from sudden and arbitrary exactions. Among the many studies illuminating the formation and operation of such networks, we may cite research on production and trade in salt (Ho 1954, Kwan 2001, Madeleine Zelin 2005), studies of commercial groups with origins in Ningbo (e.g. Susan Mann 1987) and elsewhere, Mann's work on official-merchant interactions, and previously mentioned studies of Chinese guilds. Fumei Chen and Ramon Myers explain how such network arrangements, and the customary practices that they perpetuated, contributed to the reduction of transaction costs by specifying weights and measures, currency standards, and other business practices (1989/1996).

Relationships within these networks, including within families and lineages, often took the form of patron-client ties rather than transactions among equals. David Faure quotes Prasenjit Duara's study of 20th-century North China:

"In a society where neither the market nor the state fully regulated economic relationships, the individual peasant (or village household) was often dependent on a powerful local figure ... to ensure the fulfillment of a contract, to provide access to the market ... and to protect him from predatory local government functionaries. In return, the patron received expressions of gratitude and loyalty on which he built a stock of political capital" Prasenjit Duara 1988, p. 183)

Similarly, Susan Mann finds that "marketers and traders unprotected by patronage or family connections were vulnerable to harassment and extortion" (1987, p. 62).

Faure goes on to observe that "Ming and Ch'ing [Qing] local as well as long-distance trade was conducted under extensive patronage networks just as rural life was" (1989/1996, p. 93). By emphasizing the ubiquity of "trading under patronage" but also observing that "... Ming and Ch'ing markets were relatively open ... because the patrons competed" (1989/1996, p. 95), Faure offers a sensible bridge between competing visions that analyze economic processes during the imperial era in terms of competitive markets (e.g. Ramon Myers 1980, Myers and Yeh-chien Wang 2002) or, alternatively, in terms of rivalry among gentry and official predators for opportunities to extract resources from hapless commoners (e.g. Albert Feuerwerker 1968; Philip Huang 1985, 1990). As we shall see, the idea that genuine, but limited or incomplete property

rights lead to what might reasonably be termed a “patronage economy” makes sense not only for the Ming-Qing era, but for contemporary China as well.

3.4 The Long-run Political Equilibrium: Stability, But With Limited Prospects for Reform

Starting with the simplest of assumptions – the emperor rules his large domains with a non-hereditary bureaucracy selected by competitive examination, employing the land tax as the primary source of fiscal revenue – we employ the method of political economy to derive implications that accurately depict major aspects of the actual Ming-Qing regime. The following observations summarize the long-run properties of both the “model” and, we believe, of the system that existed prior to the 19th-century escalation of western imperial pressure:

3.4.1 Stability, resilience and path dependency.

The institutional arrangements described above demonstrated great strength, resilience, and stability throughout most of the Ming-Qing era, supporting the enormous expansion of territory and population depicted in Table 1 and Map 1 in an increasingly commercialized but primarily agrarian economy. The stability of this system rested on a common ideology and close alignment of incentives among the imperial household and overlapping bureaucratic, scholarly, commercial, and landed elites. The vested interests of these elites reflected huge benefits that enriched members of the bureaucracy and local gentry.⁵⁰

The dynastic regime was also highly resilient in that it had the inbuilt capacity not only to withstand certain shocks but also to restore stability in the wake of potentially destabilizing disasters. Calamities such as the mid-19th century Taiping Rebellion that massively disrupted private property rights and cost millions of human lives encouraged average commoners to appreciate the benefits of a stable imperial rule. Tongzhi

⁵⁰ Chung-li Chang [Zhang Zhongli] (1962) concludes that gentry incomes from official positions, landholding, and business activity may have exceeded one-fourth of the Qing empire’s late 19th-century output.

Restoration in the wake of the Taiping uprising, demonstrated the willingness and the capacity of local elites to reinstate orthodox Confucian ideology, to reconstruct a fiscal regime of low and fixed land taxes, and to restore regular civil service examinations system sponsored largely by elites, actions that effectively re-established the Qing empire's foundation of a unitary and centralized rule. This system is path-dependent in the sense that the same forces that promoted stability also militated against reforms that might threaten the standing, the incomes, or the future prospects of these interlocking socio-economic leadership groups.

3.4.2 Low official fiscal resources and high tolerance for official peculation and rent extraction.

The Ming-Qing system faced stringently limited fiscal potential. In a world of rising state revenues (Table 3), static overall and declining per capita revenues recorded in the central treasury restricted the system's capacity to mobilize resources either to implement new administrative initiatives or to meet national emergencies. Although Qing ideology celebrated the beneficial welfare consequences of a "small state," we cannot determine whether this reflects the rulers' initial belief or represents a rationalization of unavoidable realities of governance arising from China's unique political economy. The low official fiscal revenue and the lack of fiscal provision for local governance also made it often difficult to differentiate personal corruption from the collection of informal revenues intended to support administrative costs and public goods. Hence, considerable portions of gentry income were linked to rent extraction and corruption on the part of officials. Emperors accepted, even implicitly approved, substantial financial abuse, relying on ideology and occasional severe punishments to deter extreme behavior.⁵¹

⁵¹ Rulers who became concerned about excesses of corruption and malfeasance imposed extreme punishments on prominent miscreants with the aim of persuading the entire bureaucracy to reduce the level of extraction. Ping-ti Ho describes the use of selective capital punishment to control Qing officialdom (1962, 293-295). The People's Republic employs similar tactics to control official abuse.

3.4.3 Mutual reinforcement between ideology and incentives, between *de facto* and *de jure* political and economic power.

The combination of status, power, and high incomes available to examination graduates, official appointees, and their families provided incumbent elites and ambitious commoners with powerful incentives to seek advancement within the imperial system by investing in Confucian education for bright sons in the hope that they might earn examination degrees. The frequency with which poor households sought schooling for sons who, while eligible to compete, had no realistic chance of achieving examination success reflected both the practical benefit of literacy in a society permeated by written documents and the long-term impact of Confucian ideology, which accorded respect and status to men whose educational attainments, however modest, exceeded the local norm.

The result was a remarkable consistency of objectives, incentives, and mobility strategies across social strata. Rich and poor, elites and commoners, farmers and craftsmen, all used financial resources to invest in education and relied on educational attainment to promote both social standing and economic gain. In this fashion, generations of Chinese strengthened an ideology that associated leadership with educational attainment and exalted hard work and thrift as the proper route to upward mobility through training, discipline, and self-cultivation.

Recent efforts by Daron Acemoglu and others to investigate the institutional backdrop of long-term economic growth emphasize links between *de jure* power arising from legal provisions and other formal institutions and *de facto* influence attributable to custom, wealth, and other informal arrangements (Acemoglu, Johnson and Robinson 2005). Imperial China displayed extreme interpenetration of formal and informal influence and power. Public office was the most important source of prestige and wealth. At the same time, money was essential to finance the long years of preparatory instruction and study needed to pass the civil service examinations: During 1834/35, 81 percent of provincial examination graduates and 93 percent of successful palace examination candidates were over 24 years of age; over half of the palace graduates and nearly 40 percent of the provincial degree-winners were over 35 years (Benjamin Elman 2000, pp. 704, 706). Thus Ping-ti Ho notes that “the children of salt merchants probably received the best schooling in the empire,” which enabled a group

of fewer than 300 families to produce 139 palace degree-holders and 208 provincial examination graduates between 1646 and 1802 (1954, p. 162). This cross-fertilization of economic resources, status, and political power represented both a bulwark of stability and a formidable obstacle to reform.

3.4.4. Informal property rights and a patronage economy.

The absence of effective checks and balances on official power meant that, with the exception of the smallest petty exchange, regular commercial operation presupposed some accommodation with whatever body of officials had the capacity to obstruct business activity. This is the foundation of David Faure's "patronage" economy (1989/1996). The accommodation typically consisted of an exchange in which commercial operators undertook to provide a stream of revenue in exchange for unwritten but well-understood and enforceable commercial rights, often involving territorial control over the sale or purchase of specific commodities. As the next section will show, 19th century foreign and Chinese businesses alike – including rich and well-connected operators – experienced great difficulty in fending off opposition from such merchant-official combines, which turned out to be strong, resourceful, and determined in opposing initiatives that they perceived as threats to their position. Similar forces may have been at work earlier, quietly discouraging entry, risk-taking and innovation, especially outside of agriculture.

3.4.5 Limited development of monetary and financial systems.

Qing China operated under a bimetallic copper-silver monetary standard, with no regular issue of official paper currency. National authorities supervised the minting of subsidiary copper coins (cash). There was no official minting of silver; the economy relied on a combination of un-coined silver bullion and imported silver coins. Along with multiple metallic currencies, different localities and trades maintained their own units of account. The outcome was a maze of exchange rates among silver, silver coins, copper cash, private bills, and units of account that varied by region and trade.

These important features of the monetary system were a direct product of China's political equilibrium. Ironically, the Chinese experiment with large scale

issuance of paper or fiat money under the Song (960-1279) preceded that of Europe by several centuries. Fiscal constraints at the center and the absence of a credible commitment to limit seigniorage led to high levels of inflation and bankrupted the reputation of paper money, apparently constraining Qing official minting to copper cash, a small-denomination currency. The outcome is a monetary system characterized by a large array of overlapping and sometimes ad hoc exchange rates and units of account that gave rise to high transaction costs and the proliferation of money exchangers throughout the empire. (Peng Xinwei 1958, King 1965).

Property rights issues (and the underlying legal system) seem largely responsible for the restricted development of financial instruments, an area in which China looks much different from pre-industrial European nations, particularly Holland and England. In China, we see no early appearance of tradable long-lived financial instruments, indeed no scope for financial transactions beyond spot exchanges in the absence of personal links. This continued well into the treaty port era, when “much share capital was raised through private connections” (David Faure 2006, p. 52). In the economy of imperial China, only land was suitable for long-term passive wealth-holding – owners could rely on managers or bursaries to collect rents and pay taxes, and will their properties to their descendants.

4. Turbulent Century: China Confronts The Industrial Revolution, 1840-1939

4.1 China’s Opening, 1840-1895: An Overview

The stability of the equilibrium we have described hinged on the imperial capacity to head off potential internal and external threats. China’s Manchu Qing rulers, leaders of a semi-nomadic ethnic group with origins in China’s northeastern frontier region, were unusually adept at containing the long-term threat posed by non-Han nomads based beyond the Great Wall through a combination of diplomacy and, if needed, military conquest.⁵² The 19th century brought a notable acceleration of political and

⁵² The term “Han” or “Han Chinese” describes the ethnicity of the majority of China’s populace. “Non-Han” refers to ethnic Manchus, Mongols, Koreans, Tibetans, and other ethnic groups residing within China’s borders.

economic change arising from both internal and external forces. Beginning with the White Lotus (1796-1804), a series of domestic rebellions, culminating with the vast Taiping uprising (1851-1864), both reflected and contributed to the erosion of the Qing regime. In the first half of the 19th century, falling terms of trade, unfavorable weather trends and the reversal of long-standing silver inflows may have inflicted further shocks on the Chinese economy.⁵³

The challenge arising from Western imperialism represented a watershed in Chinese history - an external threat drastically different from China's traditional nemesis of land-based invasion across her northern frontier. The rise of European imperialism threatened the economic, political, institutional and ideological underpinnings of China's imperial system. The turbulent period from roughly 1800 to 1949 helps to illuminate the dynamics of the Ming-Qing imperial system. While demonstrating the strength and resilience of the Qing empire, events during the century following the 1842 Nanjing treaty settlement also reveal the strong and persistent influence of institutional obstacles to economic growth that emerge from our political economy analysis.

Prior to 1800, European trade with China was a lopsided affair dominated by Chinese commodity exports, notably tea and silk, which were exchanged for silver coin and bullion shipped from the Americas. British merchants, frustrated by the limitations of the "Canton system," which, from 1757, had restricted European trade⁵⁴ to that city (now known as Guangzhou), urged London to demand wider access to the China market, initially with little success. The Qianlong emperor (r. 1735-1796) rebuffed proposals from the 1793 McCartney mission, which sought to expand the scope of trade, writing famously that, although China had no need for British goods, he would graciously allow British traders to purchase tea and silk at Canton.⁵⁵

⁵³ Jeffrey Williamson (2011, pp. 33-34) concludes that China's external terms of trade fell by 85 percent between 1796 and 1821; David D. Zhang et al 2007 and Lillian M. Li (2007, pp. 27-30) cite evidence of low temperatures and declining rainfall; Man-houng Lin cites contemporary accounts suggesting that silver outflows during the first half of the 19th century might have reduced China's stock of monetary silver by 7-19 percent (2006, pp. 83-85).

⁵⁴ The Canton system did not affect trade with Asian partners, which involved a number of port cities.

⁵⁵ The text appears at

<http://www.history.ucsb.edu/faculty/marcuse/classes/2c/texts/1792QianlongLetterGeorgelll.htm> .

Soon thereafter, British and Indian traders discovered a ready Chinese market for India-grown opium. Believing the ensuing shift in China's trade balance from surplus to deficit and the reversal of long-standing silver inflows were linked to rising opium imports,⁵⁶ a disturbed Qing court dispatched a high official, Lin Zexu, to extirpate the Canton opium trade. When he did so, the British merchants sought London's protection from what they regarded as an illegitimate seizure of mercantile property and disruption of trade.

The result, fuelled by British visions of a vast China market, was the Opium War of 1839-1842.⁵⁷ British arms forced the Qing to accept the Treaty of Nanking (1842), which ceded Hong Kong to the British, forced the Qing to accept a regime of virtual free trade, and initiated the "treaty port" system by opening five Chinese ports to British merchants. This agreement, which set the tone of China's international economic relations during the century prior to the Pacific War, subsequently expanded to include dozens of treaty ports where foreign residents were protected by extraterritoriality at the expense of Chinese sovereignty.

While these innovations initiated a long process of change that resulted in substantial economic advance during the early 20th century and contributed to the genesis of China's current boom, the initial pace of change was slow. Historians writing in the mid-20th century focused on the task of explaining the contrasting responses of China and Japan to the humiliation of unexpected defeats at the hands of powerful Western intruders. Searching for ways of understanding China's shortcomings and lacking any hint of China's subsequent dynamism, historical researchers proposed multiple interpretations of China's 19th century experience, none of which encompass the possibility that China's initially slow response to Western incursions might eventually develop into a protracted and explosive economic boom.

Some observers viewed the 19th-century encounter with globalization as essentially irrelevant to the overall trajectory of China's economy. Authors like Marion J.

⁵⁶ Recent research has questioned the link between rising opium imports and silver exports during the 19th century, citing other potential sources for the reversal of silver imports, including the rising gold price of silver, declining domestic demand for silver, as well as a breakdown in the Spanish Peso Standard. See Man-houng Lin (2006) and Alejandra Irigoin (2009).

⁵⁷ Linda Cooke Johnson cites multiple descriptions of the large scale of Shanghai's domestic trade prior to the Opium War, including references to "forests of masts" and suggestions that Shanghai's trade volume surpassed London's during the 1830s (1993, pp. 175-176).

Levy (1953) and Albert Feuerwerker (1958) view the particularistic nature of Chinese personal relations and the prevalence of corruption, factors that figure prominently in our own discussion of China's patronage economy, as binding constraints blocking economic advance. Chinese intellectuals active in the May 4th Movement, born of nationalistic outrage over the 1919 Treaty of Versailles,⁵⁸ proclaimed similar views, excoriating traditional culture for its incompatibility with modern values of science and democracy.⁵⁹

Others dismissed the 19th century treaty system, along with the accompanying expansion of foreign residence, trade, and investment, as too small and too isolated from the vast rural hinterland to have any major impact on the trajectory of China's economy. R.H. Tawney, an eminent British historian who became interested in Chinese affairs, famously described China's treaty ports as "small islands of privilege at the seaports and on the great rivers ... a modern fringe ... stitched along the hem of the ancient garment" (1932, p. 13). Rhoads Murphey elaborated on this view, arguing that the treaty system left "the great majority of Chinese ... unaffected, directly or indirectly" and that "materially, China went on behaving for the most part as it had always done" (1977, pp. 226-227).

Subsequent events have undermined these perspectives. Big growth spurts in several East Asian economies have revealed that high levels of productivity and income do not require that social relations follow the patterns observed in Western Europe or North America. And recent research has shown that despite their small initial share of total output, China's 19th century treaty ports and trade did indeed initiate processes of change that, while slow to develop, eventually resulted in a remarkable transformation of China's economy that continues today. Ironically, Rhoads Murphey's book insisting

⁵⁸ China, which supplied over 100,000 non-combatant workers to support British and French forces in Europe, expected the Versailles settlement to include the return of German concessions in Shandong province. Instead, Article 156 of the treaty awarded these territories to Japan.

⁵⁹ Hu Shi, a Cornell graduate who became China's wartime ambassador to the United States, encapsulated this perspective with a witty and bitter tale of "Mr. Just About" (*Chabuduo xiansheng*), who substitutes brown for white sugar, confuses two provinces with like-sounding names, writes 10 in place of 1,000, fails to keep track of the time, and summons a veterinarian to attend to a human patient. See http://www.readchinese.net/chabuduo_xiansheng for Chinese and English versions. The economic success of China, Taiwan, Hong Kong, Singapore, and overseas Chinese communities despite continued reliance on personal ties (*guanxi*) and other cultural practices formerly deemed to be incompatible with modernization undercuts this approach. Indeed retired Singapore leader LEE Kuan Yew (and many others) now point to "Asian values" not as an obstacle, but as a bulwark of growth, prosperity and technological progress.

that treaty ports were “tiny and isolated islands in an alien Chinese sea,” concluded by predicting – accurately, as subsequent events confirmed in short order - that China might “come to travel ... along the same road which the western colonists first urged” (1977, pp. 225, 233-234).

4.2 Change and Resistance to Change, 1840-1895

The absence of rapid economic transformation under the treaty port system causes difficulties for Kenneth Pomeranz’ widely cited analysis attributing Britain’s unique economic success and the consequent “great divergence” between European and Asian incomes to Britain’s superior access to cheap coal and new sources of land-intensive goods (2000). If this were true, the 19th century treaty system, which allowed unlimited and virtually duty-free importation of mining equipment as well as coal and other land-intensive products, along with the gradual increase in migration of Chinese farmers into the sparsely populated and fertile plains of Manchuria, should have relaxed these constraints and provided a major impetus to Chinese growth. The absence of any such outcome lends credence to our view that persisting institutional factors, which Pomeranz downplays, may have imposed binding constraints on China’s growth prospects both before and after the start of the treaty port system.

4.2.1 Political accommodation and institutional change to 1895.

The new era marked by China’s forced opening began disastrously for the Qing, which was nearly toppled by the devastating Taiping Rebellion (1850-1864). Chinese Confucian elites based in Hunan and Anhui provinces, men like top-ranking examination graduates Zeng Guofan (1811-1872) and Li Hongzhang (1823-1901), who mobilized funds, assembled regional armies of militiamen, and led successful campaigns to defeat the powerful Taiping rebel armies. This episode, in which regional elites from the China’s Confucian mid-Yangzi heartland took up arms, suppressed rebel forces, and transferred newly-won power to a child emperor (Tongzhi, r. 1861-1875) descended from non-Chinese conquerors, demonstrates the resilience of the traditional regime in

aligning incentives of the throne with elite commoners whose self-interest lay in the preservation of a unitary and centralized empire.

Under the so-called Tongzhi Restoration (1861-1875), the Qing also engineered a remarkable economic recovery through the revitalization of traditional institutions: the reinstatement of Confucian orthodoxy, the restoration of the National Civil-Service Examination (largely interrupted during the Taiping Rebellion), and temporary exemption from land taxes to lure cultivators back to war-torn agricultural regions. The *likin* (*lijin*) tax, a form of transit tax on internal trade, initiated as a new source of local revenue to confront the mounting Taiping crisis, became institutionalized within fiscal system. Along with new taxes on seaborne international trade collected by the foreign-administered Imperial Maritime Customs, an arrangement forced on the Qing by European pressure, the *likin* system began to restructure the Chinese fiscal regime, with the result that by 1908, the long-dominant land tax declined to a mere 35 percent of officially recorded revenue, while the share of commercial taxation rose to over 65% (Yeh-chien Wang 1973, p. 80).

Nor did the Qing remain entirely passive to Western incursions. As a natural extension to the Tongzhi Restoration, powerful regional bureaucrats such as Li Hongzhang and Zhang Zhidong (1837-1909) sponsored the Self-Strengthening movement (1860-1894), a program that aimed to expand Chinese military strength by developing a small number of Western-style, capital-intensive enterprises financed by the state and directed by prestigious officials who possessed the highest credentials awarded under the Confucian academic system. Although these enterprises, which included arsenals, factories, and shipyards, were fraught with inefficiency and corruption, they did manage to record modest achievements (Ting-yee Kuo and Kwang-Ching Liu (1978). The Jiangnan Arsenal, located in Shanghai, impressed Japanese visitors in 1873. Japanese reformers relied on Chinese translations of European scientific treatises (Elman 2005, p. 411). China's Hanyeping steelworks began production five years ahead of Japan's Yawata complex.

Despite these innovations, the overall ideological orientation during this period remained conservative, representing, as aptly suggested by the title of Mary Wright's classic book (1962), the last stand of Chinese conservatism. In contrast to the concurrent Meiji reform in Japan, there was no effort to overhaul the fundamentals of

the traditional regime: no introduction of modern constitution or commercial law, no reform of the currency system; modern banks and modern infrastructures such as railroads were expressly prohibited; steamships were limited to the Yangzi and other major rivers (Mary Wright 1962, SUZUKI TOMŌ 1992). After examining this record, Dwight Perkins (1967) concludes that “If the imperial government of China was an obstacle to industrialization, it was more because of what it did not do than because of harmful efforts which it did undertake ... The real problem was that although the Ch'ing government ... did take a number of positive steps they were few and feeble” in large part because its financial resources were “almost unbelievably weak” (1967, pp. 491-492). Developments during the second half of the 19th century highlight Qing strength and flexibility, but also reveal the limits of China’s traditional imperial regime.

4.2.2 Economic change and its limits: the partial unraveling of economic institutions

The expansion of China’s international trade was the first and most obvious effect of the treaty port system, which opened a growing list of ports to European commerce while restricting Chinese tariffs to a modest 5 percent. China’s Maritime Customs data show real imports more than doubling in the two and half decades prior to 1895, and exports increasing by half this amount

Despite its modest scale, trade gradually pulled major domestic commodity markets into close alignment with international exchange throughout the Pacific Basin. Loren Brandt’s discovery that, starting in the late 1880s, domestic prices for rice, wheat, and cotton moved in close harmony with market shifts throughout the Pacific basin demonstrates that several decades of unfettered trade forged unprecedented global links with vast swathes of China’s economy (1985, 1989). By the late 1880s, millions of villagers inhabiting the Yangzi river’s drainage area who grew, bought, or sold rice, or worked for or traded with partners who engaged in those activities, had become unwitting participants in far-flung networks of international commerce, influencing and being influenced by distant producers, consumers, and traders of rice.

The treaty system accelerated the arrival of new technologies, initially to the treaty ports themselves, which in both the 19th and 20th century versions of expanded

links to global markets, became staging points for the spread of technologies into the domestic economy. The development of manufacturing, however, fell far short of the potential associated by the expanded inflow of goods, technology, and knowledge during latter half of the 19th century.

Attempts by Chinese and European entrepreneurs to capitalize on opportunities linked to new technologies and trade arrangements encountered powerful obstacles to innovation within China's late Qing economy. These barriers, which affected the expansion of key public infrastructure such as railroads and inland steam shipping (Shannon Brown 1978; Suzuki Tomō 1992), are most clearly visible in the history of private efforts to introduce new technologies and business arrangements in the processing of agricultural commodities like soybeans and silk larvae.

When Jardine, Matheson, a British firm with deep pockets and potent connections, set out to establish a steam-powered silk filature in Shanghai during the 1860s, they anticipated difficulties in installing imported machinery and training Chinese workers to operate it. What they did not expect, and what destroyed the project's prospects, was their inability to obtain prompt and efficient delivery and storage of cocoons:

The mandarins [officials] were bribed to oppose me, people and brokers, more or less in the hands of the silk *hongs* [companies] frightened from me, suitable houses were refused me or set fire to, and what I actually built was pulled down and the Chinamen that did assist me were put in chains (Shannon Brown 1979a, pp. 561-562).

Efforts to establish a steam-powered facility for processing soybeans met a similar fate (Shannon Brown 1979b). Chinese entrepreneurs fared no better: during the 1870s, riots by traditional silk weavers caused a local magistrate to order the closure of mechanized silk-reeling factories that an overseas Chinese merchant had established in Guangdong (Debin Ma 2005).

Conflicts arose when new ventures clashed with vested interests arising from what Eiichi Motono describes as the "economic principle" guiding traditional Chinese economic administration: "no one could acquire the right to do business without paying ... tax" (2000, p. 64). Officials at all levels granted commercial monopolies to groups of merchants in return for delivery of supplementary taxes. Commercial entry

was thus restricted to operators who organized themselves into tax-paying groups and negotiated trade rights with the state (Motono 2000, pp. 3-6). These arrangements had a long history: in Tianjin, for example:

“By the early eighteenth century ... groups of transport workers had become organized into a guild system in which groups of workers received government permission to monopolize transport in a particular area. Official notices were pasted up in each sector, delimiting its boundaries and naming the authorized transport agent. From the Kangxi to the Xuanfeng reigns (1662-1861), the Qing government issued ‘dragon tickets’ or other notices of official approval to the the transport guilds “... Under the Guangxu Emperor [r. 1875-1908], successive magistrates issued 11 orders supporting the special privileges of the guilds.” (Gail Hershatter 1986, p. 117).

The resulting merchant-official combines joined forces to repel interlopers who threatened mercantile profits and official revenues. In response to complaints from merchant clients, officials either intervened directly (“the Chinamen that did assist me were put in chains ...”) or empowered incumbent merchants and their agents to act as official deputies in enforcing barriers to entry. During the 1870s, merchants from the southern city of Swatow (now known as Shantou) controlled Shanghai’s opium trade. When newcomers imported large stocks in advance of an increase in taxes, the Swatow guild obtained permission to bring in “runners” who assumed the role of policemen. These agents

“attempted to collect the *Lijin* tax from anyone who dealt in opium, regardless of [where and by whom] ... it was stored. Moreover, they charged... non-members of the Swatow ... group a higher rate than their members. Furthermore, they confiscated all opium the moment it left the foreign importers’ hands ... unless the transaction was carried out by members of the group. In order to prevent commercial activities by non-members, they sent spies and informers around the shops.” (Motono 2000, p. 98)

Contemporary and retrospective accounts agree that such arrangements posed serious obstacles to innovation. Writing in 1909, H.B. Morse noted that

“all Chinese trade guilds are alike in interfering with every detail of business and demanding complete solidarity of interest in their members, and they are all alike also in that their rules are not dead letter are actually enforced. The result is a tyranny of the many over of

the individual, and a system of control which must by its nature hinder 'freedom of enterprise and independence of individual initiative' (1909/1966, p. 24).

Shannon Brown echoes this sentiment: "Caught between the guilds on the one hand and the officials on the other, the Chinese merchant was hardly in a position to play the role of an innovative Schumpeterian entrepreneur" (1979b, p. 183).

The treaty system acted to undermine the very merchant-official nexus that tormented would be innovators and therefore slowed the transfer of technology and discouraged investment. The key factor was an obscure provision of an 1858 Sino-British agreement that allowed foreign merchants to avoid domestic taxes on goods in transit to or from a treaty port by paying a fixed *ad valorem* fee. This "transit pass" privilege, often cited to illustrate the intransigence of local Chinese officials and the limited reach of British power,⁶⁰ became an unlikely catalyst for institutional change.

Chinese operators quickly recognized that transit passes intended for the use of foreign traders could shield their own goods from domestic taxation. Yen-p'ing Hao shows that Chinese merchants bought transit passes from British firms, paid foreign residents to assume nominal ownership of goods in transit, and even created "pseudo-foreign" trading houses operated entirely by Chinese, who again shared the resulting savings with their passive foreign partners (1986, pp. 263-267). The insightful work of Eiji Motono (2000) reveals the full impact of these initiatives, which destabilized a long-standing equilibrium that had preserved local monopolies, allowed local officials to share in commercial profits, and, as is evident from the treaty-port case studies assembled by Shannon Brown and others, to throttle interlopers.

Motono argues convincingly that these merchant-official combines formed the structural foundation of traditional Chinese merchant groups and networks, and that the Western presence, although small in relation to China's national economy, constituted a new source of power and authority in China that eroded the imperial system's long-standing monopoly over political power. He sees the transit pass system as a vehicle for eroding the authority of mercantile guilds, fracturing traditional group

⁶⁰ Thus the historian John K. Fairbank echoed contemporary complaints to the effect that "the British were quite unable to prevent the taxation of their goods" outside the treaty ports (cited in Dong Wang 2005, p. 18).

solidarity among members of particular trades, and enhancing the property rights and security available to Chinese businesses.

The outcome of China's treaty port system (and also of China's more recent "opening up" policy) richly illustrates Paul Romer's (1993) insistence that the impact of international trade resides in flows of ideas as much as in shipments of commodities. The treaty system brought many new organizational forms into the treaty ports, into the domestic economy and into China's governmental machinery. Early examples include modern banks, the Shanghai stock exchange, shareholding companies with limited liability, the foreign-managed Imperial Maritime Customs, and China's new foreign ministry, the *Zongli yamen*. The treaty ports also served as transmission belts for new structures of knowledge and belief: engineering, medicine, international law, legal jurisprudence, political representation, pragmatism, democracy, and Marxism. New ideas moved through numerous channels.⁶¹ Christian missionaries opened schools, hospitals, universities, and YMCA branches in both rural and urban areas. The success of graduates of schools with modern curricula, as well as students returned from overseas training and alumni of western-style schools in Hong Kong, demonstrated that Confucian training was no longer the sole route to economic gain and upward mobility.⁶² Overseas Chinese, formerly targets of official predation, were increasingly welcomed for their knowledge and wealth: an 1893 edict ordered that "all Chinese merchants ... may return home [from overseas] to practice their trade upon receiving a pass from the Chinese minister or consul ... they may go abroad again to carry out their business and must not as in the past be subjected to extortion" (Michael Godley 1981, p. 78).

⁶¹ XIONG Yuzhi (2011) offers the most comprehensive treatment of the diffusion of Western influence in China. The treaty ports themselves epitomized new ideas and practices. ZHAO Jin explains the shocking impact on Chinese sensibilities when authorities in Shanghai's International Settlement refused to halt traffic to make way for the entourage of high level Chinese officials such as LI Hongzhang (1994, p. 118). See Debin Ma 2011c discusses the influence of Western legal system and practice in Shanghai.

⁶² Drawing on employee records of the late 1920s for the Tianjin-Pukou railroad, Noam Yuchtman (2010) shows that individuals with Western education from modern schools established either by foreigners or Chinese commanded a higher skilled labor premium than individuals educated in traditional schools that prepared students for the imperial civil service examinations.

4.3 The Shock of Defeat by Japan as a Turning Point

China's defeat in the Sino-Japanese War of 1894-1895 by a nation long regarded as a student rather than an equal marked the end of the Self Strengthening Movement, which events revealed to be feeble and ineffective.⁶³ This ignominious military failure inflicted a profound mental shock on Chinese elites and the public at large. The Celestial Empire, having stumbled into the unwelcome role of global laggard, faced unprecedented mockery as the "sick man of Asia."

The shock effect of Japan's victory magnified the importance of the 1896 Treaty of Shimonoseki. The agreement granted foreigners the right to establish factories in the treaty ports. Eliminating the prohibition against foreign factories in the treaty ports sparked a rapid expansion of foreign direct investment. It also had the beneficial effect of indirectly legitimizing Chinese modern enterprises, and therefore reduced the harassment that conservatives had routinely inflicted upon modern Chinese ventures, especially those outside the protection of prominent national and regional reform leaders.

In addition, China's naval defeat directly triggered the Hundred Days' Reform centered in the southern province of Hunan in 1898. Largely inspired by the Japan's successful Meiji reforms, sponsored by influential provincial leaders and intellectuals, and backed by the young Guangxu emperor (r. 1875-1908), this reform effort was crushed by conservatives led by the emperor's aunt, the Dowager Empress Cixi. The subsequent debacle surrounding the Boxer Rebellion of 1900 and the ensuing multi-national foreign invasion battered the Qing with fresh setbacks and forced a new round of concessions. The yawning gap between China's continuing humiliation and Japan's rapid modernization launched a fresh wave of domestic reform initiatives, with Cixi, the former arch-reactionary, now assuming a leading role.

Modeled directly on Japan's Meiji reforms, the Qing constitutional movement of 1903-1911 ironically echoed numerous initiatives of the recently rejected Hundred Days' agenda. The new reform effort was comprehensive and ambitious. It aimed at steering China toward a constitutional monarchy by drafting a formal modern

⁶³ Benjamin Elman argues that China's military defeat encouraged an excessively negative assessment of the Self-Strengthening Movement and an inappropriate emphasis on Chinese backwardness (2005, pp. 379-382, 392-393).

Constitution with national, provincial and local level parliaments. Military modernization was high on the reform agenda. Administrative reforms sought to modernize public finance and adopt a national budget. The reform initiative gave birth to new Ministries of Education, Trade and Agriculture and encouraged the founding of local chambers of commerce. Additional policy initiatives aimed at currency reform, establishing modern banks, and expanding railroads and other public infrastructure (Douglas Reynolds 1993).

New developments in taxation, law, and education foreshadowed the demise of China's traditional political economy. The top priority of the newly established Ministry of Commerce was "to break the control of the Qing local governments over the Chinese merchants' groups and Chinese firms." To this end, the reformers set out to eliminate tax-farming arrangements involving cooperation between "the leaders of the prominent Chinese merchants' groups and the officials of the *Lijin* tax bureau" (Motono 2000, pp. 154-156). The same Ministry, through the Company Law, introduced limited liability into China's economy and also sought to establish new opportunities to establish and operate businesses without the need for informal partnering with incumbent officials (William Kirby 1995). A year later, the decision to abandon the thousand-year tradition of Confucian civil service examinations shook the foundation of the power structure that had long supported the patronage economy of imperial China.

4.4 Economic Developments 1912-1949: Mixed Outcomes and Partial Breakthrough

Even though the Qing dynasty's collapse in 1911 quickly terminated late Qing constitutional reform efforts, the dramatic acceleration of reform efforts in the wake of the 1896 Treaty of Shimonoseki sparked the first major wave of Chinese industrialization.

4.4.1. The onset of China's industrial revolution

Beginning at the very end of the 19th century, activity in mining and manufacturing accelerated sharply from its small initial base. Overall industrial output

showed double-digit real annual growth during 1912-1936, a phenomenal result for that period, especially in view of China's turbulent political scene and the impact of the Great Depression (John K. Chang 1969). Factory production, initially focused on textiles, food processing, and other consumer products, clustered in two regions: the lower Yangzi area, where both foreign and Chinese entrepreneurs pursued factory expansion in and around Shanghai, and China's northeast or Manchurian region, where Japanese initiatives predominated (D.K. Lieu 1936, Elizabeth B. Schumpeter 1940, Manshū kaihatsu 1964-65, Ma 2008). By 1935, Chinese factories, including some owned by British or Japanese firms, produced 8.0 percent the world's cotton yarn (more than Germany, France or Italy) and 2.8 percent of global cotton piece goods production (ILO 1937, vol. 1, pp. 57-58).⁶⁴

Despite the importance of foreign investment in Shanghai and especially in Manchuria, Chinese-owned companies produced 73 percent of China's 1933 factory output (T. Rawski 1989, p. 74). Growing production of light consumer and industrial goods, combined with the accumulation of experience in operating and repairing modern machinery generated backward linkages that spurred new private initiatives in machinery, chemicals, cement, mining, electricity, and metallurgy. Official efforts (including semi-official Japanese activity in Manchuria) also promoted the growth of mining, metallurgy, and arms manufacture (Thomas Rawski 1975; 1989, chap. 2).

China's economic prospects acted as a magnet for trade and investment during the prewar decades. China's foreign trade rose to a peak of more than two percent of global trade flows in the late 1920s, a level that was not regained until the 1990s (Nicholas Lardy 1994, p. 2). C.F. Remer calculated that, between 1902 and 1931, inflows of foreign direct investment grew at annual rates of 8.3, 5 and 4.3 percent in Shanghai, Manchuria and the rest of China between 1902 and 1931 (1968, p. 73). By 1938, China's stock of inward foreign investment amounted to US\$2.6 billion – more than any other underdeveloped region except for the Indian subcontinent and Argentina (Chi-ming Hou 1965, p. 98). Although estimates of pre-war capital flows often blur the distinction between direct and portfolio holdings, it is evident that China played a substantial role in global capital flows. The 1938 figure of US\$2.6 billion for

⁶⁴ Hong Kong's prominence in the textile sector during the early postwar decades resulted from the arrival of Shanghai textile entrepreneurs, who diverted shipments of imported equipment to Hong Kong as Communist prospects for victory in China's civil war advanced during the late 1940s.

China's stock of foreign investments amounts to 8.4 percent of worldwide stocks of outward foreign investment; China received 17.5 percent of outbound foreign direct investment in that year (Michael Twomey 2000, pp. 32, 35). By contrast, China's 2001 share of worldwide inward foreign direct investment was only 2.1 percent (Dirk Willem te Velde 2006, Table 2). Domestic investment also showed substantial growth. "Modern-oriented" fixed investment (calculated from consumption of cement, steel, and machinery) grew at an average annual rate of 8.1 percent between 1903 and 1936, outpacing Japanese gross domestic fixed capital formation in mining, manufacturing, construction, and facilitating industries, which advanced at an annual rate of 5.0 percent. Despite the effects of the Great Depression and political tumult, economy-wide gross fixed investment exceeded ten percent of aggregate output during 1931-1936 (T. Rawski 1989, pp. 251, 261).

Transport development contributed substantially to economic expansion. China's growing railway network, although much smaller than India's, was particularly important, as the length of track grew from 364 kilometers in 1894 to over 21,000 by 1937, newly constructed north-south lines slashed economic distances across a landscape dominated by rivers flowing from west to east (YAN Zhongping 1955, p. 180). Completion of railway and telegraph connections linking Peking (now Beijing) and the central China river port of Wuhan in 1906 reduced the time needed to ship commodities between these cities, sell the goods, and receive the proceeds in response to observation of a favorable market price from 150 days to 2-3 days (based on information in Joseph Whitney 1970, p. 46). Growing availability of rail transport stimulated coal production, with the result that "falling energy costs stimulated new activity in a wide range of industries ...[including] railway workshops [and] manufacturers of cement, textiles, flour, cigarettes, matches, chemicals" and others. Lower fuel prices also "led to the revival of native industries which had earlier languished because of the high cost of fuel" (T. Rawski 1989, pp. 224-225; Tim Wright 1984, p. 46). Railway transport also encouraged the commercialization of agriculture, raising farmers' terms of trade and boosting production of regional specialties like cotton, fruit, sesame, peanuts, and tobacco (Ernest P. Liang 1982, chap. 5).

In a remarkable triumph of a free banking version of the silver standard, privately held Chinese banks, often cooperating with foreign financial institutions and traditional

money shops, transformed the financial face of China by persuading households and businesses to transact with paper banknotes that were convertible into silver on demand.⁶⁵ This monetary transformation reduced transaction costs. The expansion of branch networks allowed major domestic banks to “attract deposits from all regions and recycle them to the areas of greatest demand,” contributing to the emergence of an embryonic national market for funds (T. Rawski 1989, p. 159).

These forces resulted in increased per capita output and structural changes of the sort associated with Simon Kuznets’ concept of modern economic growth in two major regions: the Lower Yangzi, where private domestic and foreign investment in and around Shanghai served as the key driver (Debin Ma 2008) and the Northeast (Manchuria), where Japanese investment and eventual takeover provided key momentum (Kang Chao 1982, MIZOGUCHI Toshiyuki and UMEMURA Mataji 1988)

More controversially, Thomas Rawski (1989) argues that developments in industry, transport, and finance precipitated an episode of modern economic growth at the national level during the early decades of the 20th century. His estimates of substantial modern-sector growth resemble earlier results (e.g. John K. Chang 1969 for modern industry). With the modern sector accounting for only 12.6 percent of GDP in 1933 (Ta-chung Liu and Kung-chia Yeh 1965, p. 89), growth in modern sector alone says little about aggregate output. In contrast to Rhoads Murphey (1977), Rawski finds that substantial spillovers from modern sector activity pushed output expansion ahead of population growth in several non-modern sectors, including the native banks (*qianzhuang*), handicraft textiles, and traditional water transport.

With agriculture occupying two-thirds of the economy, any significant revision to growth estimates rests on a reappraisal of agricultural performance, which is constrained by the unreliability of available information on acreage and yields by crop (Rawski 1989, pp. 282-285). In the absence of reliable figures on the growth of agricultural output, Rawski appeals to indirect measures of agricultural labor productivity: wages of hired farm labor and non-farm wages available to unskilled rural

⁶⁵ The promise of convertibility was maintained until China’s decision to go off silver late in 1935. Two decades earlier, the Bank of China and the Bank of Communications vehemently resisted pressure from the new Republican government to suspend convertibility because of growing fiscal constraints. Ironically, similar pressures may have been at work in the decision in 1935 to move to a managed currency (Loren Brandt and Thomas Sargent, 1989).

migrants in male (coal mining) and female (cotton textile factories) occupations that competed for farm labor. The argument is that, with ample labor mobility and competitive labor markets, sustained increases in real wages paid to farm laborers, miners, and mill hands cannot occur in the absence of parallel increases in the marginal product of agricultural labor, and therefore in the real income of the majority of self-employed farmers who operated independently as owners or tenants (1989, chap. 6). Brandt (1989) makes a similar case for Central and Eastern China, focusing on increasing specialization and commercialization in the farm sector, a process that he ties to growing openness to the international economy, favorable terms of trade, and spillovers from China's emergent modern/urban sector.

4.4.2 Problems of state- and nation-building

Except in Manchuria, where semi-official Japanese agencies moved toward a regime of central planning, these developments primarily reflected private initiative. Following the establishment of the Kuomintang-led Nanjing government in 1927, the Chinese state mounted a vigorous effort to establish administrative structures that could formulate and implement developmental policies. These efforts

“coalesced in a number of important pockets of Republican government: in finance and tax, in water conservancy, in the national personnel policy articulated by the Examination Yuan and Ministry of Personnel, in the National Resource Council and, from the middle of the 1930s, through the activities and writings of a group of administrative reformers headed by Gan Naiguang of the Ministry of the Interior” (Julia Strauss 1997, p. 340).

William Kirby notes that “the greatest progress” toward “the creation of modern developmental bureaucracies ... occurred under the National Resources Commission ... the technical and managerial agency that came to dominate state industry under the Kuomintang regime (1927-1949) and then formed “the basic institutional arrangement of China's [post-1949] state-owned enterprise,” a core element in the planned economy under the People's Republic of China (William Kirby 1990, p. 125; Morris L. Bian 2005, p. 213).

Non-government agencies, many the products of initiatives by returned students, supported these efforts. The National Association of Mass Education Movements formulated a Ten Year Plan covering 1930-1940 that proposed a systematic program to promote literacy, education, health, agriculture, and industry at the village level (Charles Hayford 1990, pp. 105-107).

Despite these gains, China's Republican governments could not roll back developmental obstacles arising from insufficient administrative capabilities and persistent shortfalls in revenue. Central government revenue never reached 3 percent of China's aggregate output (T. Rawski 1989, p. 15). A substantial portion of commercial tax collections was dedicated to servicing foreign and domestic debts. The Kuomintang declared its newly established Nanjing regime as the national government at a time when its actual control spanned only a handful of provinces. To obtain the nominal allegiance of various regional governments, the new government ceded all agricultural taxes to the provinces. This step, which left Nanjing heavily reliant on revenues from foreign trade and coastal urban businesses, proved disastrous once Japanese forces forced the Kuomintang to abandon its coastal base and retreat into the interior.

Strauss comments that "central state capacity was extremely limited with respect to the key issues of taxation and personnel, and the project of building civilian institutions was consistently undercut by the twin phenomena of internal division and external military pressure" (1997, p. 333). Abolition of the Confucian civil service examinations opened the door to new personnel policies, but since

"nothing convincing had been instituted as a replacement. ... short-term pressures to provide patronage and buy off recalcitrant subordinates and would-be allies repeatedly stymied the re-institutionalization of norms of objectivity and impartiality, however attractive they remained in principle ... in this highly unfavourable environment of ... slender resources and external pressures, what the central governments of Republican China needed was, in effect, an "institutional breakthrough" - some means by which to climb out of this morass of weakness and begin to implement a vision of centrally led institution building and development while standing up to external pressure" (Strauss 1997, pp. 334-335).

Unfortunately, no such breakthrough occurred. The same obstacles that bedeviled earlier attempts at top-down reform were much in evidence under the Kuomintang administration of the 1930s and 1940s. In response to late Qing reforms, provincial officials, eager to preserve their traditional bureaucratic equality with the center's Boards (of Revenue etc., which became Ministries in the final years of Qing) resisted efforts to establish a "unitary" system that would subordinate provincial offices to their central counterparts. Qing reforms actually strengthened the position of local elites. "Attempting to consolidate its rule by putting the gentry members under the control of the local officials," the new structures had the effect of converting *de facto* gentry privilege into *de jure* rights and powers: "officially approving their domination of the locality. . . by formally incorporating their functions into the lowest level of government" (Chūzo Ichiko 1980, pp. 394, 402).

The Kuomintang encountered similar difficulties, especially beyond its Lower Yangzi power base, where "local society was dominated by secret societies and rural elites," which sturdily defended "their long-standing political, military, and economic dominance" so that Nanjing's "controls in the interior – horizontally over the provinces, and vertically down to the rural elites and the urban moneyed classes – remained weak" (Lloyd Eastman 1984, pp. 219, 221).

Mixed outcomes prevailed within the Yangzi delta region that the Nanjing regime did control prior to Japan's 1937 invasion. There are clear signs of continued effort to replace the patronage system with genuinely open markets:

"In 1928, the Nationalist government abolished the trading privileges of the Cocoon Merchant Guild, lifted the restrictions on the opening of cocoon *hangs*, and started reforms in commercial taxation and tax farming. Between 1928 and 1929, the number of cocoon *hangs* in Wuxi county jumped by about 30%." (Debin Ma 2004a, p. 392)

At the same time, the old system under which businesses operated on the sufferance of political elites remained much in evidence. In Tianjin, "Guild bosses. . . opposed the efforts of some merchants to introduce motor vehicles . . . threatened to kill the general manager of the factory [that had purchased trucks, so that] the factory had to turn control of transport back to the guild" (Hershatter 1986, p. 134).

Historians vigorously debate the nature of government-business relations in and around Shanghai, the heartland of China's modern economy prior to the Pacific War. Parks Coble argues that Kuomintang efforts to control and tax the business sector often involved coercion, including the use of criminal elements to pressure enterprises located in Shanghai's foreign-controlled concessions. But with even Coble's critics agreeing, for example, that prominent industrialist "Jung Tsung-ching, threatened with arrest and confiscation of his property ... used connections and escaped with only having to make a modest purchase of government bonds" (Parks M. Coble 1986, preface, quoting p. xi), it seems evident that even the immunity conferred by foreign banks and foreign-controlled concessions in major Chinese cities proved unable to supplant the traditional patronage system with secure private property rights. Jung's vulnerability seems no different from that of Qing-era salt merchants.

Beginning in 1929, China's economy faced a succession of shocks arising from the Great Depression and falling export demand, the severance of Manchuria in 1932 by the Japanese, and rapidly rising silver prices triggered by Britain's decision to go off gold and the United States Silver Purchase Act of 1934. Considerable debate persists over how well the Chinese economy weathered the storm, and the severity of the combined impact of these events on aggregate economic activity.⁶⁶

There is little controversy about what followed. Twelve years of war, with large-scale civil strife following the defeat of Japan's invading armies, battered China's economy and rolled back much of the progress achieved during the preceding decades. Warring armies and predatory soldiers killed draft animals, commandeered or destroyed vehicles and emptied markets. The textile industry, China's largest, was cut off from supplies of raw materials and virtually ceased production. Facing terrifying uncertainty, farmers retreated into self-sufficiency. Roaring inflation reinforced this backward march and crippled China's financial sector. Corruption hobbled the public sector and embittered the populace. When MAO Zedong's victorious armies marched into Beijing, the new People's Republic of China inherited a shattered economy wracked by physical destruction and extreme macroeconomic instability.

⁶⁶ For divergent views of this period, compare Tomoko Shiroyama (2008) with T. Rawski (1989) and Loren Brandt and Thomas Sargent (1989).

5. Development Under The People's Republic Of China.

5.1 Socialist Planning 1949-1976

The broad contours of economic change following the establishment in 1949 of the People's Republic of China (PRC) and the re-unification of China under CCP rule are well understood. The new government quickly implemented an orthodox mix of fiscal and monetary policies to restore fiscal balance and quell hyperinflation, steps that helped facilitate recovery from damage inflicted by 12 years of war and civil strife. Following violent campaigns that expropriated the assets of urban and rural elites, the latter through a land reform that redistributed approximately 40 percent of the agricultural land (Peter Schran 1969, p. 22; John Wong 1973, p. 160; Charles R. Roll 1980, chap. 4), the PRC moved to implement socialist planning. The new system was loosely modeled after the Soviet Union, the source of loans, technology, and advice for China's First Five-Year Plan (1953-1957).

The new regime swept away the remnants of several Qing-era institutional constraints on growth, completing a process that had begun prior to World War II. Land reform eliminated powerful local interests that may have had links with previous political regimes and obstructed reform efforts. Economic growth figured prominently in Beijing's policy agenda. Reflecting Leninist theory as well as knowledge and experience acquired from the administration of rural base areas during several decades of intermittent civil war with the Kuomintang (Peter Schran, 1976), the Communists came to power with a disciplined party hierarchy, to which they quickly added a vertically-integrated administrative system that, for the first time in Chinese history, penetrated to the village level. This system gave the PRC an unprecedented capacity to ensure nationwide implementation of official instructions and directives without relying on the cooperation of local gentry or other independent agents. Although provincial and local leaders often adapted and distorted messages from Beijing in ways that benefited their own agendas, this new structure represented a major change that brought important consequences.

The new government vastly expanded state control over resources, rapidly eliminating the long-standing shortage of fiscal revenue that had prevented earlier governments from financing aggressive development initiatives. The ratio of fiscal

revenue to national product, which remained below 10 percent throughout the Qing and Republican eras, rose rapidly after 1949 and averaged more than 25 percent between 1952 and 1977. (Compendium 2010, p. 18).

China's plan system, introduced with Soviet advice during the early 1950s, bore strong resemblances to its Soviet counterpart (Barry Naughton 1995, chap. 3). In both cases, the overriding objective was not to raise living standards, but rather to develop and expand a self-sustaining military-industrial complex. This called for high rates of saving to finance investment skewed toward heavy industry along with an elaborate planning apparatus to capture resources and channel them into high priority investments. With markets virtually eliminated, the regime managed prices in order to extract forced savings from farmers and consumers. These savings made their way to the state coffers through profit remittances of state-owned enterprises. In the countryside, resource extraction from households was made possible by collectivization of agriculture and strict controls on the mobility of the rural population through the *hukou* system of residential permits. In the cities, rationing contributed to a buildup in household savings.

There were also differences. Chinese planning was never as extensive as the Soviet Union's, and remained much more decentralized (Christine Wong, 1985). In contrast to the U-form hierarchy of the Soviet Union, the Chinese economy resembled an M-form, and was comprised of a large number of relatively self-sufficient regions, e.g. provinces and prefectures (Audrey Donnithorne, 1972; Eric Maskin, Yingyi Qian and Chenggang Xu, 2000).⁶⁷

Starting in 1958, China distanced itself both from Moscow's political leadership and from Soviet economic strategy, as MAO Zedong embarked on a daring campaign to accelerate the pace of development by amalgamating rural households into large-scale collective units (*renmin gongshe* or People's Communes), and by promoting rural industrialization. The communes proved to be a costly failure: poor incentives, false reports of rising crop output, excessive grain procurement, and a massive reallocation of labor from agriculture to industry inflicted an immense famine on China's peasantry

⁶⁷ Using terminology derived from studies of corporate structures by Alfred Chandler and others, Maskin, Qian, and Xu (2000) describe Chinese industrial structures as "M-form" – i.e. analogous to multi-divisional corporations, which they contrast with "U-form" (resembling unitary corporations) structures observed in Soviet industry.

that cost tens of millions of lives.⁶⁸ Efforts to revive forward momentum in the early 1960s met with some success, but the economy suffered further setbacks in the mid-1960s when a political campaign known as the "Cultural Revolution" sparked a new reversal in economic policies and incentive mechanisms.

Mixed economic outcomes characterize China's quarter-century of socialist planning under MAO and his colleagues. The plan era brought notable expansion of industrial and technological capabilities, as well as major improvements in literacy, school attendance, maternal and infant survival rates, public health, and life expectancy. Real annual GDP growth of roughly 6 percent (aggregate) and 4 percent in per capita terms⁶⁹ surpassed gains in India, Pakistan, Indonesia, Egypt, Brazil and other large low-income nations, often by large margins (David Morawetz 1978).

These successes were accompanied by shortcomings and setbacks, which occurred in part because the PRC government, while eliminating institutional barriers inherited from the past, used its unprecedented administrative capacity to implement a succession of anti-economic policies, including an assault on individual and firm-level incentives, persecution of intellectuals and educators, forced collectivization of farming, a destructive regimen of local self-reliance, the diffusion of unsuitable technological innovations in both agriculture and industry, and severe restriction of cross-border flows of trade, investment, people, and information.⁷⁰

Under socialist planning, growth occurred almost entirely along the extensive margin, sustained only by a rising share of GDP channeled into investment.⁷¹ Although output per person increased, consumption did not. Calorie availability for China's immense rural population fell below World Bank standards for minimum subsistence during the Great Leap Forward (1958-1960) and did not regain that benchmark for two

⁶⁸ Discovery of new materials has tended to raise estimates of famine deaths. Frank Dikötter's review "puts the number of premature deaths at a minimum of 45 million" (2010, p. 325). Earlier estimates of PENG Xizhe(1987) and Basil Ashton et al (1984) suggest excess mortality between 20-30 million.

⁶⁹ These official figures for 1953-1978, based on what the Chinese call "comparable prices," are from China's National Bureau of Statistics (NBS 2007, p. 7). Use of 2000 prices, which avoids upward bias inherent in plan prices assigned during the 1950s, results in average annual growth of 4.4 percent for real GDP during 1952-1978 (Dwight Perkins and Thomas Rawski 2008, p. 839).

⁷⁰ The dwindling trade ratio and near-elimination of foreign investment characteristic of China during the years 1949-1976 represents a joint outcome of U.S.-led efforts to prevent its allies from trading with China and China's own anti-trade policies.

⁷¹ Official data show that gross capital formation absorbed 22.2-25.8 percent of GDP during 1952-1957 and 32.2-36.0 percent during 1970-1977 (NBS 2007, p. 19). See also Shigeru Ishikawa (1983).

decades (Thomas Rawski 2007, p. 91). Many millions of Chinese villagers were no better fed in the 1970s than in the 1930s (Nicholas Lardy 1983; Chris Bramall 1989), and rationing was pervasive. Food supply problems also limited the growth of the urban population, which, measured as a percentage of the total population, scarcely increased between 1958 and 1978.⁷² Moreover, a substantial gap emerged between the living standards of urban and rural households (Thomas Rawski, 1982).

Long-term failure to provide an adequate food supply reflected the conflict between central planning and individual incentives endemic to socialist systems. State-run research institutes made significant advances in the development of high-yielding varieties, but benefits were undermined by planning inefficiencies and weak incentives (Lardy, 1983).⁷³ Similarly, as in the Soviet Union and Eastern Europe, industrial innovation languished because the plan system's focus on physical output spawned powerful incentives for factory leaders to focus on quantity and skimp on quality, variety, cost reduction, specialization, and customer service (Joseph S. Berliner 1976; Thomas Rawski, 1980). A typical report complained that First Auto Works, one of China's premier manufacturers, found its "obsolescence of equipment and models worsening day by day" following "thirty years of standing still" (LI Hong 1993, p. 83).

5.2 The Reform Era Since the Late 1970s

The death of MAO Zedong (1893-1976) was widely recognized as the end of an era for both the PRC and for China's economy. China's reform initiatives of the late 1970s arose from twin concerns about food security and the growing gap between productivity and living standards in China and neighboring East Asian economies, both of which threatened the political legitimacy of the ruling Communist Party (CCP). The initial reforms focused on four areas: rural liberalization, expansion of foreign trade and investment, policies aimed at "enlivening" state-owned enterprises, and fiscal decentralization (Carl Riskin 1987; Justin Lin, Fang Cai and Zhou Li 2006; Barry Naughton 2007).

⁷² Official data show that urban residents comprised 16.2 percent of the national total in 1958 and 17.9 percent in 1978 (Compendium 2010, p. 6).

⁷³ As discussed below, this untapped potential, especially in major grains and cotton, likely played an important role in the acceleration of agricultural growth after 1978.

5.2.1 Policy initiatives during the first decade of reform

Agriculture and the rural economy. The central feature of China's rural reform was the return of household farming. Initially permitted as an experiment in a few poverty-stricken areas, the "Household Responsibility System" (HRS) spread rapidly as villagers "voted with their feet" to abandon collective agriculture in favor of the new system, which established what amounted to a system of tenancy, with cultivators paying fixed rents to the local government and retaining marginal earnings for themselves. Along with the HRS, the reform raised state procurement prices for grain and relaxed controls over rural markets for both products and farm inputs.

These reforms elicited an explosive response (Justin Lin 1988, 1992). Grain output rose by almost a third between 1978 and 1984, with output of cash crops and farm sidelines growing even more rapidly. Equally important, rapid productivity growth in farming freed up a large pool of labor formerly trapped in collective agriculture (Thomas Rawski and Robert Mead, 1998), which combined with a growing supply of agricultural goods, rising household incomes, and freeing up of markets for both inputs and outputs sparked a massive boom in rural industry, especially in China's coastal provinces (Chris Bramall 2009, chap. 3). Within less than fifteen years, employment in China's township and village enterprises expanded by nearly 100 million. The success of both the HRS and township and village enterprises demonstrated the remarkable resilience of a tradition of private contracting in an environment of vaguely defined property rights and pervasive political patronage.

Globalization. Following a period of intense debate in which, as in late Qing, conservatives insisted that international contacts threatened to erode the cultural foundations of Chinese society (LI Lanqing 2009, ZHAO Ziyang 2009), the PRC embarked on policy of gradual opening, initially focused on the establishment of four Special Economic Zones in the southern coastal provinces of Guangdong and Fujian, along with increased autonomy for those provinces to approve foreign investments and retain foreign exchange earnings.

After an initial period of confusion,⁷⁴ the new zones powered a steep increase in labor-intensive manufactured exports. Guangdong and Fujian moved quickly to welcome investments by overseas Chinese entrepreneurs, many of whom had family ties to those provinces. Overseas investors were classified as “compatriots” (*tongbao*) rather than “foreign merchants” (*waishang*) and accorded special privileges. China benefited enormously from a historical accident: Beijing’s decision to allow inflows of foreign direct investment came just as steep increases in labor costs prompted Taiwanese and Hong Kong entrepreneurs to seek new locations for their labor-intensive export operations. This resulting marriage of ethnic Chinese business operators with Chinese migrant workers provided a massive boost to nascent reform efforts and launched China on a trajectory toward its current status as “workshop of the world.”

Foreign direct investment focused on labor-intensive export production soon spilled beyond the zones to encompass China’s rapidly expanding rural factories, first in Guangdong and Fujian, and then to other coastal provinces. When early experiments with openness were seen to generate large benefits, regional competition sparked growing enthusiasm for expanding foreign trade and investment, with officials at every level scrambling to capture opportunities linked to growing flows of trade, inward foreign direct investment, and (perhaps most important) inflows of knowledge and information, both through personal interaction and via the gradual diffusion of telephone, fax, computers, and the internet.

At the same time, falling international transport costs and new computer/information technologies allowed large multi-national manufacturers to reduce costs by setting up far-flung supply chains to take advantage of international differences in capabilities and costs. These firms viewed China as a stable source of inexpensive and cost-effective labor; for China, the multi-nationals promised new inflows of capital, managerial knowledge, market access, and technology. This confluence of interests produced first a trickle, and then a torrent of capital inflows as local governments strained to attract top international companies. The initial emphasis was on export production, but China’s ongoing economic expansion sharpened the interest of multi-national firms in China’s domestic market as well. This encouraged

⁷⁴ Overseas Chinese visitors expressed dissatisfaction with the Xiamen SEZ during the summer of 1982, complaining that it was impossible to formulate a business plan because the SEZ authorities refused to specify the cost of critical elements including land, water, and electricity (1982 interview).

Chinese officials to hone their strategy of offering access to the domestic market in exchange for large-scale technology transfers to the foreign firms' suppliers and joint venture partners.

As a result, China, formerly among the most isolated economies, moved rapidly to rejoin the global system of exchange. Between 1978 and 1993, official data show a rise in China's trade ratio from 9.7 to 31.9 percent. At the same time, China began to absorb large flows of foreign investment.

Enlivening state enterprises. Between 1955 and 1978, the number of industrial enterprises increased from 125,000 to 348,000, output rose by a factor of 10, and employment expanded from 5.9 to 61 million workers. In 1978, state-owned enterprises contributed 77.6 percent of industrial production, with the remainder coming from collective firms, most controlled by local governments or state-owned firms.⁷⁵ Most firms, most managers, and many workers had no market-economy experience. Firms carried out instructions. Pricing, advertising, marketing, selecting the product mix, and responding to market developments played no role in day-to-day operations. Observations from 1982 regarding two manufacturers of sewing machines illustrate pre-reform circumstances in Chinese state firms. When a Chinese visitor suggested that the work force at a Canton factory was three times the necessary size, the manager agreed, but said "if we did not employ them, where would they go?" At a large Shanghai plant, the manager repeatedly insisted that he did not know the unit cost of the products coming off his assembly line; his position: "our job is to produce sewing machines; costs are the concern of the general company office" (1982 interviews).

China's reformers, dissatisfied with the passivity of firms that were intended to lead China's economy, set out to "enliven" state-owned industry by injecting new incentives, flexibility, and technology.⁷⁶ Neither privatization nor bankruptcy was considered. Instead, managers of state enterprises were granted greater autonomy in running their firms. Funding was shifted from grants to loans from newly established state-owned commercial banks. Hints of a labor market began to appear: retirees and

⁷⁵ Data in this paragraph are from Nai-ruenn Chen (1967, pp. 182, 475); Industry 2000, p. 21; Compendium 2010, p. 40; Yearbook (1991, p. 96).

⁷⁶ Accounts of initial reforms affecting state-owned industry include Barry Naughton (1995) and Edward Steinfeld (1998).

workers with special skills concluded informal moonlighting arrangements with firms that could benefit from such services. Also, a new class of “contract” workers emerged without the lifetime job security promised to incumbent workers in state-owned enterprises.

Rather than transferring profits (and losses) to the state, firms were allowed to keep a share of their profits, which could be spent on new equipment, bonuses for workers and managers, or upgrading workers’ housing. To supply nascent markets, firms were allowed to find their own outlets for production that exceeded annual plan quotas, which in China tended to be considerably below actual capacity. In 1984, a new “dual track policy” institutionalized these initiatives, essentially partitioning almost all commodity markets into plan and market components. This horizontal bifurcation represents a genuine policy innovation, retaining the tax/subsidy elements implicit in plan allocations of inputs and outputs while revealing current information about marginal costs to agents throughout the economy.⁷⁷

Fiscal decentralization. China’s early reforms included important fiscal changes. The new arrangements replaced the former unified system in which the center had controlled tax revenues and then assigned funds and responsibilities to lower governmental levels (*tongshou-tongzhi*). The new set-up divided revenue sources among various levels of government and included an array of multi-year fiscal contracts which committed lower levels of government to deliver specified revenue flows to the level immediately above them in the official hierarchy (Gabriella Montinola, Yingyi Qian, and Barry R. Weingast 1996). Combined with an ongoing trend toward decentralization of authority over economic management that began during the era of socialist planning, this change gave local governments the incentive, the resources, and the policy tools to promote local economic growth with an intensity and determination rarely visible in other economies. However, lower rates of growth and rapidly falling profitability in the state sector (Barry Naughton 2008, pp. 107-109), agency problems in the collection of central government tax revenue, and a combination of nominal tax contracting and inflation contributed to sharp erosion in central government tax revenue (Christine Wong and Richard Bird 2008).

⁷⁷ Under modest assumptions, this regime approaches Paul Samuelson’s vision of a market system with initial lump-sum transfers.

5.2.2 The role of political change

China's initial decade and a half of reform rested on important political changes which allowed for and interacted with economic initiatives in ways that facilitated the economy's gradual migration toward market-influenced outcomes.

With improvements in living standards central to re-establishing political legitimacy, China's ruling Communist party shifted its objectives toward greater emphasis on economic growth, particularly at the intensive margin, and away from the sort of "ideological correctness" that had turned descendents of landlords, businessmen, or non-communist political leaders into pariahs and elevated "red" enthusiasm over "expertise" derived from knowledge and experience

The CCP also reformed its internal structure to emphasize governance based on formal procedures rather than, as under MAO Zedong, on the personal inclinations of top leaders. Chenggang Xu (2010, p. 16) refers to the early years of reform as a "watershed period in which the CCP began to transform itself from a 'personality-ruled party'" into what Susan Shirk (1993) describes as "a system governed by rules, clear lines of authority, and collective decision making institutions." The changes included a strong effort to establish personnel policies that would install objective criteria rather than seniority or personal ties as the chief determinants of appointments and promotions.

Elite recruitment reflected this shift, as both government and party welcomed new graduates of China's universities following the revival of merit-based admissions beginning in 1977. The expansion of elite recruitment gradually encompassed entrepreneurs and other former pariahs: the rehabilitation of RONG Yiren, a Christian-educated entrepreneur, disgraced during the Cultural Revolution, but then tapped in 1978 to establish the China International Trust and Investment Corporation (CITIC), "the investment arm of the Chinese state" and eventually appointed to the ceremonial post of Vice President of China, epitomized this change (Economist 2005).

Of particular importance was a new system of performance evaluation for sub-national officials based on quantitative algorithms that assigned heavy weight to GDP

growth in the region under an official's jurisdiction (Susan H. Whiting 2001). Facilitated by China's M-form hierarchy, implementation of these personnel policies inspired tournament-like competition among county magistrates and provincial governors, who recognized that accelerated economic growth would bring recognition and promotion, and made strenuous efforts to ramp up local economies.⁷⁸ The impact on official behavior has been profound, with reform-era career paths reflecting economic outcomes in jurisdictions governed by individual officials (Hongbin Li and Li-An Zhou 2005).

The newly evident vertical alignment of incentives spanning the CCP leadership, local and regional officials, and ordinary Chinese, most of whom stood to benefit from rapid economic growth, helped to reduce the agency costs inherent in any system of governance in a nation of China's size and probably strengthened the capacity of China's government and party leaders to shape the behavior of lower-level officials assigned to implement the center's policy decisions (Barry Naughton 2011).

Under the PRC's highly authoritarian political system, policy objectives are defined by the Party. However, the reform period also witnessed the refinement of a system of policy experimentation with deep historical roots – both during the pre-1949 experience with land reform and other matters in Communist-controlled base areas, and, at greater remove, during the imperial era, when local experimentation gave birth to the nationally-implemented *likin* (*lijin*) tax on domestic trade during the second half of the 19th century.⁷⁹ Sebastian Heilmann traces Chinese Communist experimentation, particularly in the area of land policy, back to the 1930s, and identifies “*experimentation under hierarchy* . . . the volatile yet productive combination of decentralized experimentation with ad hoc central interference, resulting in the selective integration of local experiences into national policy-making” as “the key to understanding China's policy process” (2008, p. 29). Under this system, proponents of specific policies promote experimental implementation. Successful trials generate information that buttress recommendations for widespread implementation; skeptics can review such reports and inspect the trial sites. If trials fail, costs to the national economy are slight. Of course, the advantages of such experimentation depend on

⁷⁸ Montinola, Qian and Weingast provide examples of such behavior (1995, p. 74).

⁷⁹ On policy experimentation in contemporary China, see Elizabeth J. Perry and Merle Goldman 2007 and Sebastian Heilmann and Elizabeth J. Perry 2011. On the origins, of *likin*, see Edwin Beal 1958, chap. 3.

sufficient local autonomy to allow trial implementation, critical review of initial results (notably absent from 1958 until the early 1970s), and the capacity to ensure widespread implementation of successful initiatives (often absent during the imperial era).

5.2.3 Assessment of the first decade and a half of reform

Despite obvious limitations, we can see in retrospect that China's initial reforms – economic as well as political – represent a watershed in Chinese economic history. For the first time, China's economy avoided most of the Qing-era institutional constraints as well as the most restrictive of the fresh obstacles imposed by the PRC. With the environment of the 1980s and early 1990s still far from ideal, and powerful restraints still limiting both domestic markets and global participation, the scale of the response to new opportunities, which astonished both domestic and overseas observers, attests to the underlying potential of capabilities and behavior patterns inherited from the decades and centuries prior to 1949 as well as the scale of human and physical capital accumulation under the PRC.

The greatest success occurred in the rural economy, where the explosive response to implementation of the household responsibility system banished the specter of food shortages and sparked the largest episode of poverty alleviation in human history (Martin Ravallion and Shaohua Chen 2007; Thomas Rawski 2011b). China's rural economic revival went far beyond an intensification of effort in response to the restoration of individual incentives. The reform unleashed a torrent of entrepreneurship replete with written contracts, formation of supply chains and market networks, circumvention of official restrictions, bribery, and profiteering – a veritable census of way-stations along the “capitalist road” that an unceasing stream of pronouncements, speeches, regulations, documents, campaigns, and exhortations had denounced, restricted and often punished during China's twenty years of rural collectivization.⁸⁰

Similar phenomena appeared in the cities. Dwight Perkins observed that “when China stopped suppressing such activity ... Shops, restaurants and many other service

⁸⁰ Typical descriptions include Anita Chan, Richard Madsen and Jon Unger (1992, pp. 271-282) and Thomas Lyons and Victor Nee (1994).

units popped up everywhere ... [because] Chinese ... had not forgotten to trade or run a small business" (1995, p. 231). This sudden reappearance of an extensive entrepreneurial repertoire following a lengthy hiatus signals the contribution of human capital legacies to China's recent boom and underlines the persistence of "stock[s] of knowledge transmitted from generation to generation" including "practical knowledge, or 'knowing how' ... [leading to] shared behavioral regularities or shared routines within a population" (Chris Mantzavinos, Douglass North and Syed Shariq 2004, p. 77).

Rapid expansion of international trade and investment eliminated long-standing shortages of foreign exchange, began to tap the wealth and expertise of Overseas Chinese and of multinational corporations, and introduced a long-absent element of economic rationality into investment policies by channeling resources into labor-intensive export production that matched China's resource endowment.

Efforts to upgrade state enterprises were far less successful, and losses mounted despite massive direct and indirect subsidies. Throughout much of the 1980s, China's economy was a halfway house combining elements of old and new. While the plan system, the state sector, and the official allocation of resources – especially labor and capital – remained much in evidence, the reform policies of agricultural liberalization, domestic market expansion, international opening, and fiscal decentralization contributed to growth, to the acquisition of new knowledge, and, especially along various margins, to a substantial injection of market forces and pressures into the economy.

Although the reform process spawned episodes of social unrest – the 1989 Tian'anmen protests in part reflected public anger over inflation and corruption – several features acted to limit the social friction arising from the initial reforms. Most importantly, the first fifteen years of reform produced no substantial group of losers – a rare outcome in episodes of substantial socio-economic change (Lawrence J. Lau, Yingyi Qian, and Gerard Roland, 2001). In general, the early reforms mainly affected resource flows: adjustments of stocks in the form of layoffs, bankruptcy, or privatization were notably absent.

Reforms such as the dual-track system, which protected the absolute value of the economic rents of the planners, even if they subsequently declined significantly as a

percentage of GDP, have been singled out in this regard. In addition, potential losers of reforms often became its strongest advocates and beneficiaries. Dissolution of collective farming undermined the power and perquisites of local rural leaders, but the same set of reforms simultaneously endowed them with new opportunities, often as entrepreneurs or enterprise managers of new or formerly commune and brigade-run enterprises, roles that enabled them to turn political networks into economic assets. Similarly, the retreat from planning brought widespread commercialization of government agencies (partly in response to the fiscal squeeze described earlier), which enabled government officials to turn what began as a reduction in their authority into economic gain.

Equally if not more important, however, was the massive redistribution of resources from China's rapidly growing and dynamic non-state sector, to a sluggish state sector. Wages and employment in the lagging state sector were largely able to grow because of ongoing injections of credit through China's highly repressed and state controlled financial system. Rapidly rising saving rates and few alternatives for these savings—a product of financial repression—meant that much of the increase in savings ended up in China's state-run banks, which in turn recycled them to state-linked firms and institutions. Estimates put these flows in upwards of 10% of GDP by the late 1980s/early 1990s (Loren Brandt and Xiaodong Zhu, 2000). These flows helped to ensure that the gains from rapid growth were more equitably shared than otherwise would have been the case.

5.2.4 Political and economic change since the mid-1990s

Despite fifteen years of GDP growth averaging eight percent per annum, China reached a critical crossroads in the early 1990s. Growth had become highly cyclical, with successive periods of liberalization and reform accompanied by high growth but also higher rates of inflation. Soft budget constraints in the state sector saddled the state-owned banks with portfolios dominated by non-performing loans. Finally, central government fiscal revenue had fallen to twenty percent of total fiscal revenue, and only 3 percent of GDP. In various ways, these problems can be linked to one central issue: persistent costs associated with China's bloated, plodding, and often inefficient state-

owned enterprises that manifest themselves in the form of excessive state-sector employment, weak management, lax labor and financial discipline, rising losses, and overdue debts.

In the mid-1990s, China's policy-makers attacked these difficulties with a remarkable sequence of policy changes following the Chinese Communist Party's November 1993 decision to adopt the long-term objective of building a "socialist market economy" that were designed to limit government's role to macroeconomic control; prudential regulation of such matters as competition, social safety nets, health and environment; and strategic planning, with other choices to reflect the outcome of market processes.⁸¹ The ensuing policy resulted in a sweeping overhaul of the fiscal system that sharply increased the center's fiscal strength (Wong and Bird 2008).

Reorganization of the financial system that tightened central control, strengthened the authority of the People's Bank of China (China's central bank), removed non-performing loans from the balance sheets and recapitalized state-owned banks, increased the commercial orientation of bank operations, and reduced the power of provincial and local officials to influence lending decisions (Franklin Allen, Jun Qian, and Meijun Qian 2008; Gang Yi 2010).

Comprehensive restructuring of the enterprise sector, including the furloughing and eventual dismissal of over 50 million redundant employees, most in the state sector, substantial privatization of both state and collective enterprises, along with further reforms – including virtual elimination of planned allocation of materials – that sharply increased the market orientation of the remaining government-linked firms.⁸²

Broad embrace of globalization that transformed China into a major participant in global flows of commodities, capital, and technology (Lee Branstetter and Nicholas R. Lardy 2008). To this end, China reduced tariffs and other trade barriers in advance of its 2001 entry into the World Trade organization, established numerous economic zones and industrial parks to serve the needs of overseas investors, loosened restrictions on overseas travel and study for its own citizens, encouraged Chinese firms to invest

⁸¹ The text of this decision is available at <http://www.gov.cn/gongbao/shuju/1993/qwyb199328.pdf>, pp. 1286-1303 (Chinese version) and *China Daily, Supplement*, November 17, 1993 (English translation). Yingyi Qian and Jinglian Wu explain the background and impact of this document (2003, pp. 35-42).

⁸² On labor issues, see Thomas Rawski 2006 and Fang Cai 2010. On state enterprise reform, see Carsten A. Holz 2003; Ross Garnaut et al 2005; Shahid Yusuf, Kaoru Nabeshima and Dwight H. Perkins 2006.

overseas, and allowed legal, tax, and regulatory changes initially restricted to special economic zones and coastal regions to apply throughout the domestic economy.

Major efforts to expand the market orientation of China's economy, including extensive privatization and deregulation of domestic trade and transportation, general withdrawal of official involvement in pricing and allocation of labor and most commodities, and a rapid increase in the share of private businesses in output and especially employment, backed by new constitutional and legal provisions affirming the legitimacy of private ownership and the state's responsibility to protect private (along with state and collective) property.

These reform efforts were far more systematic than during the early years of reform. They were also far more aggressive, in that reform proponents advocated and implemented measures that imposed substantial costs on large and potentially powerful groups, including urban state sector workers formerly lionized as the "vanguard of the proletariat" and state enterprises inundated with competition from imports following steep reductions in trade barriers. They were also not fore-ordained.

What critical factors allowed these new reforms to go forward? Interpretations differ, but several are prominent. First, the successes of reform, starting with developments in the rural sector, persuaded growing numbers of policy-makers to move beyond the 1980s slogan of "planned economy as the mainstream, with market allocation as a supplement" (*jihuajingji wei zhu, shichang tiaojie wei fu*). Despite the dismissal of reformist Premier ZHAO Ziyang and the partial rollback of reform initiatives following the June 1989 suppression of mass protests in Beijing and other cities, the momentum of reform thinking enabled the 1993 decision to move toward a "socialist market economy with Chinese characteristics." The accompanying explanations pointed to a market outcome as the long-term goal. Thereafter, "the functions of the government in economic management gradually began to be confined to the spheres of macro-control, market supervision, social security, environmental protection, and management of state-owned assets" (HU Angang 2010, p. 169). Beyond these boundaries, allocation decisions were, in principle, to move toward market outcomes.

In this process, Yingyi Qian (2000) has emphasized the accumulation of experience among China's leaders, who absorbed the lessons of China's initial decade

of reform, studied international experience within and beyond the European transition economies and former constituents of the Soviet Union, and used the resulting knowledge to inform the evolution of Chinese policy. In this regard, rapid improvement in the quality and penetration of official and academic economic research, bolstered by the arrival of graduates trained at leading institutions throughout the developed world, may have convinced growing numbers of policy-makers that strong measures were needed to address long-standing problems such as the costly conflict between decentralization and supporting a large and diverse population of state-owned enterprises.

While recognizing the importance of this learning process, it is unlikely that this expanded reform effort could have unfolded without important political changes. Barry Naughton (2008) emphasizes the effect of personnel changes among China's top leadership. During the 1980s and early 1990s, party elders and retired officials retained the capacity to block or veto measures that threatened interest groups – for example, workers in state-owned firms – with whom they were associated. Beginning in the mid-1990s, the death and decline of these “veto players” empowered JIANG Zemin, ZHU Rongji and their successors to undertake decisive, far-reaching moves that were formerly beyond the reach even of China's highest officials.

Several additional political factors may have reinforced this trend. First, educational disruption during the Cultural Revolution decade (1966-1976) provided reformers with an acceptable rationale for discarding seniority-based promotion in favor of emphasizing personnel “quality” (*suzhi*), for which the metric is university or post-graduate training. The result - leapfrogging a generation of potential leaders whose main qualification was loyalty to the Communist Party and to MAO Zedong – surely accelerated the pace of market-oriented reform. Strong emphasis on educational attainment in recruiting for official positions and Party membership may have reduced the commitment of policy elites to planning and state ownership.⁸³ Second, migration of policy-makers and administrators from dynamic coastal jurisdictions to interior regions eager to replicate the economic gains of places like Shenzhen and Shanghai may have homogenized views within the policy community. And third, promotion of

⁸³ Emphasis on educational credentials has created a strong demand for both full- and part-time training programs, as well as a lively market for forged credentials.

some of the same individuals to even higher positions of authority in both the CCP and government helped to further reinforce these trends.

6. Conclusion

6.1 China's Economic Achievement

In 1800, China was the world's largest national economy. Over the next 175 years, China's relative position suffered a long decline. During the 1960s and 1970s, most Chinese had inadequate diets and no savings. Three decades of reform has produced a genuine leap forward in the size of China's economy and the prosperity of its citizens. China's recent boom has reshaped China's economic structure, sharply lowering the importance of agriculture in production and especially employment, raising the share of industry and, more recently, of services, and beginning a protracted process of urbanization. Chinese producers and consumers are increasingly engaged with sophisticated technologies like smart phones, high-speed trains, and space exploration. Formerly state-controlled and internationally isolated, China's economy now reflects the deep and expanding influence of domestic and global market forces.

6.2 Linking China's Economy with the Past: Continuities and Departures

China's enormous growth spurt has stimulated efforts to define a "Chinese model" of growth or to establish a "Beijing consensus" of development-enhancing policies (e.g. S. Philip Hsu, Yu-Shan Wang and Suisheng Zhao, 2011). This assumes that China's economic, political, and social circumstances are sufficiently close to conditions prevailing in other low-income nations to expect that application of Chinese economic policies may produce something akin to the favorable outcomes that China's system has delivered over the past several decades. Such assumptions seem unwarranted because of the deep historical roots surrounding important features of China's current institutional structure and the central role of China's unusual legacy of human capital in powering China's recent economic surge.

We attribute China's recent economic success to a combination of beneficial historic legacies, recent accumulations of capital, skill, and policy expertise, and important economic and political changes that facilitated the realization of old and new potentials. Despite the success of China's imperial system in absorbing vast population increases, the administrative, organizational, and entrepreneurial skills, commercial and transport networks and other developmentally-promising resources visible in the Qing economy proved incapable of generating a rapid and effective response to new opportunities arising from the British industrial revolution. If historic accumulation of resources and capabilities deserves recognition as an important contributor to China's recent growth, why does China's boom begin only in the late 1970s?

To understand the long delay in China's response to the new landscape of modern economic growth that unfolded during the 19th and 20th centuries, we propose to focus on institutional constraints. We view the trajectory of China's 20th century economy as a gradual and as yet incomplete process of rolling back old and new institutional barriers standing in the way of prosperity and growth. We begin by comparing the Qing imperial regime with the reform-era People's Republic, first noting major similarities, and then highlighting key institutional differences between the past and present Chinese systems.

6.2.2 Major institutional continuities

Our review reveals substantial areas of institutional continuity linking China's past and present.

Authoritarian system. Major elements of institutional continuity begin with China's authoritarian political system. In the People's Republic, as under Qing rule, self-perpetuating elites exercise supreme authority with no formal checks and balances. Although the Qing memorial system and the Communist Party's practice of democratic centralism provide avenues for lower ranking individuals to influence policy outcomes, decisions emanating from the throne or politburo are final. Despite the growing influence of international norms and practices over the structure and operation of China's legal codes system, the tradition of strong official control over the administration of law and justice remains intact. Today, as in the past, political leaders

are free to decide matters that, in other societies, might be determined by legal codes or judicial verdicts.

Personnel, agency and central-local tensions. To implement central policies, both the Qing and the People's Republic rely on centrally-managed, merit-based personnel systems. The Confucian approach emphasizing "rule of (properly trained, selected and motivated) men" rather than "rule of law" prevails. Both systems rely on a combination of ideology and oversight to limit the inevitable agency costs associated with granting substantial autonomy to lower-level officials, whose career prospects depend more on outcomes than on adherence to carefully prescribed procedures.

Monitoring is only imperfect however, and we observe similar agency problems today as in the Qing. Both regimes, for example, implement vigorous measures to curb what the center views as corrupt diversion of tax payments intended for the central treasury. The reform efforts of the Qing Yongzheng emperor (r. 1678-1735) failed to dent "informal networks of local power and influence" or to eliminate "the tax evasion and tax farming that [had] decreased the level of remittances" to the central treasury (Madeleine Zelin 1984, p. 307). These tensions persist: Vivienne Shue observes that rural administration in the PRC both before and after the start of reform "perpetuated the contained but unrelenting central-local struggle characteristic of imperial politics" (1988, p. 114). And today, local governments continue to resist Beijing's efforts to limit the scale of taxation and fee collection. When the center eliminated taxation on farmers by village and township-level governments, local leaders turned the power of eminent domain into a new source of revenue by commandeering farmland with nominal compensation to the occupants and then reselling it for business use at much higher prices.

Economic decentralization. Both Qing and the People's Republic combine centralization of political authority with relatively decentralized economies. The Qing economy was essentially a market system with private ownership. During the pre-reform decades under the People's Republic, China's planned economy, though patterned after the Soviet example, was far less centralized than the USSR's, with provincial and local governments controlling a substantial fraction of state-owned enterprises and managing substantial resource flows. Reforms have only increased

these decentralizing tendencies, albeit within the context of a largely market economy in which upwards of two-thirds of ownership is private.

Education, human capital and entrepreneurship. The historical legacy of a national civil-service examination designed to support the administrative tools of imperial rule helped to make pursuit of education a hallmark of Chinese society throughout the past millennium. It also promoted remarkable cultural and ethnic homogeneity in a nation of China's size. While PRC emphasis on mass education has delivered notable improvements in school attendance and other dimensions of human development, stocks of human capital accumulated long before 1949 contributed massively to China's recent economic gains. Reflecting long-standing cultural values, three decades of negative financial returns for graduates,⁸⁴ school closures and suspension of merit-based admissions during the Cultural Revolution (roughly 1966-1975), and persecution of intellectuals did not deter millions of Chinese families from emphasizing learning and study. Restoration of university entrance examinations in 1977 attracted swarms of self-taught candidates.

The legacy of human capital extends beyond reverence for education. The room allowed for small private plots and rural markets under collective agriculture helped to ensure that commercial instincts in the Chinese countryside were not totally extinguished, and contributed to the boom under HRS when small-holding agriculture once again dominated the countryside. Rapid expansion of production, employment, and exports in millions of "township and village enterprises" relied on China's deep reserves of rural management capability, highlighting what Tim Wright has termed China's historic "abundance of small-time entrepreneurs" (1984, p. 325).

Alignment of Incentives. The Qing achieved considerable success in aligning incentives among the throne, the bureaucracy, the gentry, and the common people – all of whom sought prosperity and stability. The plan era, during which the state called on ordinary Chinese to suppress their desire for better living standards for the sake of "building socialism," emerges as a historical anomaly. Following the death of MAO

⁸⁴ According to HOU Fengyun, "large-scale wage reductions for high-level mental workers" occurred in 1957, 1959, and 1961, and "mental workers. . . were mostly excluded" from wage increases in 1959, 1961, 1963 and 1971. Hou describes 1976-1990 as an era of "no payoff to education." Apparently referring to the late 1980s, Hou notes that average monthly pay in universities was RMB57 less than in the food and drink sector (1999, pp. 181-185).

Zedong, reform policies restored the traditional unity of objectives, with leaders, officials, and populace all pursuing economic growth.

Experimentation. Chinese governments consistently preface major policy initiatives with local experiments, which form “an essential part of the central decision-making process” in China today (Chenggang Xu 2010, p. 31). Experimentation continues: in October 2011, four sub-national governments were authorized to issue provincial or municipal bonds⁸⁵

6.2.2 Key institutional departures under the PRC

Vision/objectives. Like many of their British contemporaries (Deirdre McCloskey 2010, chap. 10), China’s Qing emperors failed to recognize the enormous potential returns associated with the Industrial Revolution. But even if the Qing had grasped the long-term prospects arising from steam engines, railways, and other new technologies, concerns that such forces would take on a life of their own and disrupt the delicate balance of power and alignment of interests that supported their continued rulership would probably have discouraged them from vigorous pursuit of new economic opportunities.

Reform leader DENG Xiaoping’s famous observations that “to get rich is glorious” and “it does not matter if a cat is black or white as long as it catches mice” mark the completion of century-long process that established economic opening and expansion as key elements in the objective function of China’s top leaders, who now see “economic growth as a life and death matter for the regime” (Chenggang Xu 2010, p. 13). Indeed, the capacity to deliver economic growth and high living standards constitutes a key source of legitimacy for Communist rule in the reform era. The roots of this ideology, which emphasizes economic development to improve citizens’ life chances and to enhance China’s capacity to thrive in a competitive world, originate with the weak Qing response to 19th-century imperialist pressures.

Elite recruitment and absorption of newly emerging interests. During the Ming-Qing era, elite status derived from examination success, which required

⁸⁵ (<http://english.caijing.com.cn/2011-10-25/110916003.html>).

candidates and their families to undertake massive educational investments. Qing gentry resisted efforts to open the door to newcomers whose non-traditional mobility paths threatened to devalue traditional Confucian education (Carl Mosk 2010). They did so with good reason as the abolition of the traditional examination system (1905) and the collapse of the Qing dynasty (1911) produced a rapid decline in the financial payoff to Confucian learning: by the late 1920s, the returns to “modern” education had far surpassed the financial benefit from Confucian learning among employees of the Tianjin-Pukou railway (Noam Yuchtman, 2010).

Following the MAO years, which enforced even stricter ideological limits on its political elites and actively persecuted excluded groups, the reform-era PRC has broadened elite recruitment to include two major channels – education and wealth. The new combination of large, widely-shared economic gains and CCP reform enabling wholesale absorption of potential regime opponents into elite ranks has tilted policy-making in economically beneficial directions, while assisting official efforts to marginalize dissident groups.

State capacity. Building on experience accumulated in the administration of isolated rural areas during China’s protracted civil war and in the civil war itself, the PRC demonstrated unprecedented capacity to formulate, implement, and monitor nationwide policy initiatives that, for the first time in Chinese history, penetrated directly to the village level. Campaigns to expand attendance in school, reduce infant mortality, attack “rightists” and force villagers into collectives demonstrated the reach of these new administrative structures. With the right policies, often learned through the local experimentation described above, and incentives, these structures enabled a scaling up of efforts that were essential to delivering economic growth.

Globalization. Foreign military power compelled the partial opening of China’s 19th-century economy. The Qing government sought to limit the scope of foreign activity; individual foreigners, as well as their products and technologies, faced powerful informal opposition by local gentry. China’s initial reform policies resembled those of their Qing predecessors, confining foreign commerce to a few localities. But over time, Chinese reform deepened, leading to the gradual dismantling of the fundamental institutional structure of the planned economy. The prolonged era of peace and order in the last few decades – a sharp contrast China’s Republican era during the first half of

the 20th century marked by two world wars and Japanese aggression – provided time and space for gradual reform. The peaceful and prosperous rise of Japan and East Asian tigers offered powerful models of export-oriented economies. As a result, several decades of gradual reform have moved China from extreme isolation to the opposite extreme, achieving trade ratios that dwarf those of other major economies,⁸⁶ absorbing large flows of foreign investment, and, most recently, emerging as a substantial originator of outbound foreign direct investment.⁸⁷

6.3 Unfinished business, uncertain prospects

This essay offers a comprehensive re-evaluation of the historical origin of China's economic transformation. Our objective is to provide a single analytic framework that can explain China's long-delayed response to the threats and opportunities arising from the British industrial revolution as well as the unprecedented speed and scale of the growth spurt that began in the late 1970s and continues today. Our analysis highlights ideology and institutions as crucial obstacles that constrained China's economy throughout the 19th century and into the early decades of the 20th century. We emphasize gradual changes in ideology and institutions that relaxed key constraints and thereby contributed to modest economic gains during the decades prior to World War II, and then supported the more robust economic advance under the planned economy regime from 1949 to the late 1970s. We attribute the genesis of China's current boom to the simultaneous erosion of both Qing-era constraints and new obstacles imposed under the PRC's planned economy.

Widespread agreement about both the strengths and weaknesses of the present system conceals divergent expectations about China's economic prospects. Assuming domestic political stability and continued access to overseas markets, Perkins and Rawski (2008) anticipate that China can maintain real annual growth in the 6-8 percent range to 2025. Others question the assumption of political stability. Citing evidence of

⁸⁶ Official data for 2007-2010 show annual trade ratios of 62.7, 57.3, 44.2, and 50.3 percent (Yearbook 2010, pp. 38, 229; information for 2010 from China Data Online).

⁸⁷ In 2009, China's outbound overseas direct investment reached \$59 billion (world rank #5 in 2008), while its incoming FDI (world rank #2, following the United States) amounted to \$105.7 billion; see http://www.chinadaily.com.cn/bizchina/2011-03/23/content_12213110.htm, accessed April 12, 2011.

corruption, predation, and rent seeking, Minxin Pei argues “the economic costs of ensuring the CCP’s political monopoly ... though hidden, are real, substantial, and growing ...” leading to “a set of self-destructive dynamics” that endanger China’s “most vital political institutions” (2006, p. 206).

Pei’s concerns point to long-standing institutional constraints that the PRC has not addressed. The fundamental issue is the absence of checks and balances on China’s rulers. Neither the Qing emperors nor their contemporary successors face any form of external accountability that, in other systems, might come from legislatures, courts, or elections. During the Qing era, we argue that the logic of unconstrained power led to incomplete property rights. This, in turn, promoted networks of patronage in which property owners sought protection by forming alliances with politically powerful individuals and groups, who provided shelter in exchange for cooperation and financial benefits.

While the abuses cited by Pei and others partly reflect what Andrei Schleifer and Robert Vishny (1998) call the “grabbing hand,” there is a larger pattern of systematic effort that acts to secure and redistribute resources in order to preserve and increase cohesion within the ruling groups, its associates and its supporters. In China, the institutional structures surrounding the financing, approval, and execution of investment represents the chief vehicle for such activity.

Access to investment opportunities, credit, and land are routinely used to buttress the current regime and its allies. Official approval (*pizhun*), an essential step in business formation and expansion, may be reserved for well-connected insiders, especially in sectors promising high profits. China’s state-owned banks specialize in lending to favored clients, particularly state-owned enterprises, at below-market rates and with lenient repayment provisions. Allocation of land is similarly tilted in favor of official associates and clients.

Although this system is not without advantages – as when China’s government, by ordering state-owned banks to dispense massive loans, achieved the V-shaped recovery that has eluded the U.S. economy following the 2008 financial crisis, the cost of such arrangements, although difficult to specify, is surely high. India’s economy, which is no paragon of efficiency, approaches China’s overall growth rates despite

investing a considerably smaller fraction of GDP. Pouring cheap credit into the state sector increases financial risk, fuels outsized seasonal fluctuations, elevates capital intensity, contributes to sluggish job creation, and aggravates long-standing unemployment problems (Thomas Rawski 2002). As in imperial times, the patronage economy is much in evidence: relatives and associates of top leaders can readily parlay their personal connections into prominent and lucrative positions in the business world; private entrepreneurs must arrange informal security umbrellas to deflect arbitrary disruption of business operations.⁸⁸

Thus far, the momentum of China's long boom, now well into its fourth decade, has pushed aside these costs and other seemingly daunting obstacles.⁸⁹ External events, especially the advance of globalization, with the attendant expansion of overseas markets, international supply chains and transnational flows of capital and technology, have provided enormous benefits. Most important, perhaps, is the robust development of China's non-state economy, which has provided sufficient resources to sustain rapid growth despite the drain associated with the distortions, graft, and rent-seeking that bedevil the public sector.

Once again, costs and pressures may be on the rise within China's political economy. There are signs of decreasing government effectiveness. Economic rebalancing and management of corruption represent areas where the state has failed to attain its own widely advertised objectives. The lack of independence in the legal system adds to the widespread sense of social injustice resulting from corruption and inequality.

Although Beijing has vowed to lessen the economy's dependence on exports and investment since the late 1990s, the GDP share of fixed investment, already at levels that no other economy has matched, continues to rise, in part because China's distorted financial system contributes to high personal and business savings, which in turn facilitate further growth of investment.

⁸⁸ A typical description notes that "the price that private entrepreneurs had to pay to ensure political protection was in the form of *de facto* extortion on the part of cadres" (Kellee Tsai 2002, p. 128).

⁸⁹ The costs have also been lightened by China's exceptional high savings, which is nearly half of GDP, and the exceptionally high productivity outside the state sector.

Repeated announcements of anti-corruption drives have produced no visible results: China's score in Transparency International's corruption perceptions index is the same in 2010 as in 2001, as is its relative position: better than India or Russia, worse than Turkey or Brazil.

In both instances, policy failure may arise from a clash between publicly stated objectives and the inner workings of China's patronage economy. Recent infrastructure failures, including the July 2011 collision involving two of China's vaunted high-speed trains, highlight the system costs associated with sectors that combine massive investment with large-scale corruption.

Equally striking is growing evidence of rising pressure affecting highly successful participants in China's patronage economy, many of whom are now considering overseas migration. "You can feel the anxiety of the ultra-wealthy and even of the political elite. They feel there's no security for their wealth or possessions, and that their assets could be taken away at any time. Nobody feels protected against the system anymore"⁹⁰

These observations raise two sets of questions:

Can the current institutional structure support continued rapid growth in the face of growing pressures as demographic change and rebalancing efforts lower household savings rates? As China's rising wages erode long-standing comparative advantage in a growing range of labor-intensive industries? With continuing wage pressures as formerly "unlimited" supplies of migrant labor begin to dwindle? As China's technological advances put an end to easy gains from absorbing imported equipment and manufacturing processes? As limited enforcement of intellectual property rights inflicts growing damage on innovative Chinese producers? If recession and protectionism slow the growth of world trade?

If continued growth requires another episode of major reform, is China's current political equilibrium sufficiently flexible to withstand large-scale dissolution of rents that might accompany a steep reduction in the share of credit reserved for government

⁹⁰ Jamil Anderlini and Patti Waldmeir 2011, quoting an informant whom they describe as a "publishing and fashion mogul."

projects and state-owned enterprises? Or a no-holds-barred effort to root out corruption such as Hong Kong accomplished during the 1970s (Melanie Manion 2004)?

Such concerns are not new. Writing in the mid-1990s, two prominent China specialists expressed grave doubts about the system's viability. Barry Naughton wrote that

The political system is simply not adequate to cope with the challenges that confront it. The dysfunctional political system might prevent the Chinese people from quickly building the kind of future system they would prefer; it might even jeopardize the achievements of recent decades (1995, p. 310).

Nicholas Lardy concluded his 1998 study by emphasizing the long-run importance of

"restructuring the banking system ... [even though this] will require the state and the party to surrender a great deal of economic and political power ... [in order to avoid] a lower pace of economic growth, a declining rate of job creation, and thus an even greater challenge to political stability." (pp. 221-222).

The ensuing 15 years of continued economic advance even in the face of two major global shocks demonstrate the risk of predicting the trajectory of China's complex political economy.

Careful historical study must figure prominently in serious efforts to grapple with these and many other questions surrounding the political economy of contemporary China. This review reveals powerful complementarities between efforts to fathom the structures and mechanisms undergirding China's recent economic advance and studies that aim to expand our understanding of China's imperial economy. Our survey demonstrates the insights that historical study can bring to the analysis of contemporary affairs. Several years of struggling to comprehend an immense body of historical scholarship has reinforced our conviction that contemporary developments can also provide fresh perspectives for addressing the vast and rapidly expanding storehouse of materials on the history of what once was and soon will become the world's largest national economy.

Appendix: Which Data Can Illuminate China's Historical Macroeconomy?

Historical studies of the Chinese economy rest on data that have long been the bread and butter of economic historians. These include population records; information on cultivated area and crop yields; commodity prices, especially for grain, along with the exchange rate between silver and copper cash, the key elements of China's monetary system; factor prices - wages, land rents and interest rates; material on domestic and international trade flows; as well as fiscal records, including information on the operation of official mints as well as budgetary data for the Imperial household.

Some of these data survive as by-products of a bureaucratic state that relied on written documents to collect information, study problems, and then to debate, codify and disseminate its policies. The Chinese state initiated semi-regular efforts to survey population and cultivated land, factors that directly affected fiscal revenue and domestic security. During much of the Qing era (1644-1911), county officials tabulated and reported monthly grain price data, which the state used to monitor local food availability and plan famine relief efforts. Beginning in the 1860s, the British-led Imperial Maritime Customs maintained detailed and increasingly comprehensive accounts of China's international commodity trade, including flows of precious metals, as well as partial information on domestic trade flows. Before that, import and export records from China's trading partners provide substantial information.

Along with these "official" records, historians rely on local gazetteers (*difangzhi*). These local histories were usually compiled at the county (*xian*) level by local elites, often under the sponsorship of local officials. Endymion Wilkinson reports that over 900 Ming and 5,600 Qing gazetteers survive in current library collections. He also summarizes their contents, which include maps, information on the local economy and population, fiscal affairs, water conservancy and public works, important historical events (including man-made and natural disasters), as well as commentary on local customs and prominent dignitaries and officials survive (1998, pp. 154, 156). As a legacy of the relatively high degree of literacy in Imperial times (E. Rawski, 1979), more scattered data exist in the form of contracts, records of legal proceedings, household and business account books, family genealogies, and agricultural and commercial manuals.

We can distinguish two modes of studying macroeconomic issues. Dwight Perkins' (1969) influential work on agriculture illustrates a cautious approach that combines available data with qualitative information to reach judgments about the existence and scale of broad trends. Other studies in this mode accumulate information of the sort described above to establish important features of Chinese economic life, for example the rural economy of North China (Ramon Myers 1970), Qing land taxation (Yeh-chien Wang 1973), the impact of late Qing and Republican railway expansion on Chinese agriculture (Ernest Liang 1982), or long-term efforts to combat famine in North China (Lillian Li 2007).

There is also a more ambitious mode in which researchers use local, sectoral, or microeconomic data as a platform to construct broad analytic frameworks or to inform sweeping generalizations about economic structures or national trends. G. William Skinner's work on marketing systems and macroregions (1964, 1977ab), work by Brandt (1989) and T. Rawski (1989) on economic growth in Republican China, demographic studies by James Lee, Cameron Campbell and Feng Wang (1997, 2002), Kenneth Pomeranz' comparison of Qing living standards with pre-industrial Europe (2000), and LI Bozhong's (2010) construction of income accounts for the Huating-Lou region of Jiangsu province during the 1820s, typify this approach. The limited scope and accuracy of the underlying data sources expose these and other attempts at systematic quantification to the risk of overconfident generalization.

The following case studies of demography, agriculture, and national income illustrate the characteristics and limitations of available sources.

Demographic Data. China's demographic history is integral to any narrative of China's long-term economic evolution. There are three crucial dimensions: the size of China's population at any given date; its rate of growth; and the underlying demographic regime, typically described in terms of total marital fertility, mortality, and nuptiality. Estimates of the size and growth of China's population depend heavily on censuses conducted by each dynasty/regime; unfortunately, these efforts display widely varying reliability both within and across regimes.

Demographic information illuminates the impact of Malthus' positive and preventative (i.e. voluntary) checks on population growth, which may critically influence

cross-country differences in economic outcomes. Indeed, scholars have suggested that the origins of Europe's demographic transition, individualism, and 19th century capitalism are intertwined and embedded in a family and demographic culture that encouraged revolutionary social and political change (James Lee and Feng Wang 1999). Recent growth literature linking changing demographic behavior (primarily fertility) and investment in human capital seeks to formalize some of these connections.

Although Song specialists refer to a population total of 100 million (Patricia Ebrey 1996, p. 141),⁹¹ careful empirical study of China's historical demography begins with the work of Ping-ti Ho (1959), who examined the institutional dimensions of census-taking during the Ming (1368-1644) and Qing (1644-1911) dynasties. The 1953 population census, the first conducted by the People's Republic of China (PRC), and probably the most accurate to that point, provides an important milepost that helps to triangulate earlier estimates. Table A-1 summarizes official data and prominent independent estimates of China's total population from early Ming to the present.

Scepticism about both Ming and Qing census figures reflects concerns arising from the census system's reliance on self-reporting, the incentive for misreporting inherent in the use of population (and land) registers to assign tax obligations; and the incompleteness of reporting systems, particularly in regions populated by ethnic minorities. A Ming ditty captures some of these sentiments:⁹²

Barren soil along the river, the harvest not yet ready
New taxes are announced, and yet another levy,
Every household subdivides, trying to evade them—
And officials mistake the whole thing for a growth in population!

⁹¹ Song demographic figures suffer from the difficulties noted above; furthermore, available documents refer only to numbers of households, and "no secure multiplier is available by which to arrive at the actual population" (E.L. Jones 1988, p. 77). "The strange convention used in [Song era] finance of lumping together bushels of grain, lengths of silk, strings of cash, and ounces of silver to give one number" raises further questions about the value of quantitative information contained in Song documents (Jing-shen Tao 2009, p. 698).

⁹² *Lanyang xianzhi* [Lanyang county gazetteer, 1545], with thanks to Timothy Brook.

Catastrophic loss of life in times of dynastic succession or rebellion further complicates the usual measurement problems. These are only magnified at the regional level, especially during periods of extensive internal migration.

Ping-ti Ho makes a case for the comprehensiveness and broad accuracy of the early Ming population registration (circa 1400), but finds the remaining estimates for the Ming untenable. In his view, it is not until the mid-Qing, (ca. 1775), and then only until the Taiping rebellion (1851-1864), that we can place substantial confidence in the official reporting system (1959, p. 270) and the population totals that it generated. Coming between the relatively firm totals for 1400 and 1775, the invasion from China's northeast (Manchuria) that ousted the Ming and established Qing rule (ca. 1644) resulted in significant, but unquantifiable population loss that could have amounted to many millions.

Typical of the problems encountered is an official registered population for mid-Ming (circa 1500) nearly the same as that for early Ming despite qualitative indications of significant demographic growth. Timothy Brook captures the general sentiment regarding late Ming figures: "Determining how many people were actually alive during the late Ming involves calculations with absurd margins of error. The official census records were hopelessly out of touch with demographic reality" (1999, pg 162). Mid-Qing figures present similar difficulties: official records show impossibly large increases of one-third between 1760 and 1775 and one-half between 1760 and 1790, possibly because the Qianlong emperor demanded that officials "ascertain the true population of the empire" after a 1775 regional crop failure exposed the failings of previous tallies (Ho 1959, pp. 47, 281).

Problems multiply at the regional level. G. William Skinner (1987) reconstructed the arbitrary adjustments that provincial officials used to update early 19th century population reports in Sichuan province, raising concerns about other estimates for China's mid-19th century. Skinner's revisions, (along with earlier work by Dwight Perkins (1969), suggest a population total on the eve of the Taiping Rebellion (1851-1864) of no more than 390 million, or at least 40 million lower than the official estimates. This revision has important implications not only for our view of 18th and 19th

century population growth, but also for early 20th century demography in light of losses from the Taiping Rebellion that earlier estimates placed in excess of 60 million.⁹³

Population estimates for the three Lower Yangzi provinces of Jiangsu, Zhejiang and Anhui further illustrate the difficulties surrounding regional demographic data. The official 1851 figure for the combined population of these provinces is somewhat larger than the figure of 100.6 million recorded the 1953 census (Nai-ruenn Chen 1967, p. 132, including Shanghai municipality in the 1963 total). While the Lower Yangzi provinces suffered grievously during the Taiping Rebellion (1851-1864), it is difficult to imagine that natural population growth and in-migration driven initially by the availability of prime farmland and subsequently by the region's early 20th-century economic dynamism failed to push the 1953 population above the actual level for 1850, which in all likelihood was considerably smaller than the officially recorded total.⁹⁴

Recent studies have extended the scope of demographic research by using genealogies and other records to create reconstituted family histories (Ted Telford 1990, Stevan Harrell 1995, James Lee and Cameron Campbell 1997, Lee and Feng Wang 1999, Ts'ui-jung Liu 2001, Tommy Bengtsson 2004). These micro-data complement information from official censuses, and support efforts to reconstruct key vital rates. They also raise the question of whether the new data samples are representative of the larger demographic aggregate.

The two most important sources of micro-demographic data are for the Qing imperial family and for Banner households⁹⁵ residing in sparsely populated Liaoning. Both groups are dominated by ethnic minorities whose demographic behavior might differ from that of the majority Han population;⁹⁶ Liaoning's abnormally high land/labor ratio could also have influenced demographic outcomes. Moreover, calculations of

⁹³ Skinner's downward revision to the 1850 population figures raises the possibility that the estimates of the loss of life may be too high. Independently, Peter Schran (1978) argues for a speedy recovery of population in aftermath of the shock.

⁹⁴ Peter Schran finds the notion of "substantial decline" in China's population between 1850 and 1873 to be "quite implausible" and concludes that population "losses due to the Taiping and Nien rebellions had almost been made up" by 1873 (1978, pp. 645-646). CAO Shuji (1997) discusses migration.

⁹⁵ Banner populations were a legacy of Manchu military organization. The Manchu leader Nurhachi divided his forces into groups, each of which fought under the banner of one of his kinsmen. Once the Manchus had conquered China and formed the Qing dynasty, the banners, which by then included Chinese members along with Manchus and Mongols, were assigned lands and lived separately from the general Chinese population.

⁹⁶ The share of ethnic minorities in China's 1953 census was 6.06 percent (Nai-ruenn Chen 1967, p. 126).

total marital fertility and other vital rates are highly sensitive to critical assumptions required in working with the micro-data. In the case of the banner populations, the data pertain only to surviving registered males, so that results depend on estimates of the age at which sons were registered and mortality prior to registration. Time coverage is also limited. Similarly, genealogies, which were maintained for ritual reasons, cover limited numbers, space, and time, and could suffer from various forms of selection bias.

Scholars have used China's demographic record to support a variety of claims, some mutually inconsistent. Some accounts emphasize Malthusian pressures and positive (involuntary) checks (Philip Huang 1985, CAO Shuji, 2001), while others paint a picture of economic dynamism and population restraint (Lee and Wang 1999, Pomeranz 2000).

It is easy to understand the presence of such cross-currents. Official totals for certain specific years appear to provide a reasonable picture of China's population; prior to 1953, even the best data probably require error margins of plus/minus ten percent. For other dates, larger error margins seem appropriate. Despite these substantial error margins, official data can provide plausible measures of overall population change over extended periods — the longer the better. But with substantial error margins surrounding point estimates, efforts to specify rates of population growth, even over periods as long as a century, can hardly avoid significant error margins.

Prior to the 1950s, we lack information that could allow the construction of plausible time series for crude birth rates, death rates, and population size. Micro-data can help, but are themselves limited for the reasons described above. Because estimates based on available data lack precision, ad hoc adjustments permit researchers to shape arguments to accommodate a variety of alternative stories.⁹⁷ The problem is compounded by the lack of other consistent series that might be used in conjunction with the population data to sort out competing paradigms.⁹⁸ At a minimum, these limitations suggest some prudence in making larger claims about China's demographic regime.

⁹⁷ Timothy Brook makes a similar point in the context of discussion the Yuan and Ming (2010, p. 45).

⁹⁸ Long-run wage series for England, for example, are now being used with annual population figures to try to sort alternative models of demographic change. See for example Ronald Lee and Michael Anderson (2002).

Despite these uncertainties, there is a core of information about which we can offer considerable confidence. Over a period spanning a half a millennium, China's population grew from approximately 65 million in 1400 to approximately 400 million in 1850 and 500 million around 1930, implying annual growth averaging approximately 0.4 percent per annum. Rates of growth were lower or negative during periods of succession, major rebellion, and famine, and higher in interludes of recovery and, in all likelihood, during the 16th and 18th centuries, which qualitative accounts identify as periods of stability and commercial expansion. Within this framework, we also recognize substantial heterogeneity across regions and time periods, particularly during episodes of large-scale migration. Complex interactions between economic, social and political forces were acting to shaping demographic behavior, possibly, as G. William Skinner's (1977a,b) work anticipates, in ways that were not synchronic across regions. Despite recent contributions to this field, we are still not able to produce a coherent reconstruction of household behavior patterns or of the processes that drove the trajectory of China's enormous demographic aggregate.⁹⁹

Agriculture. As late as 1933, following several decades of substantial growth in industry and services, agriculture's share in China's GDP exceeded 60 percent, mostly from crops rather than animal husbandry or aquaculture (Ta-chung Liu and Kung-chia Yeh 1965, p. 66). For the Ming-Qing era, farming in all likelihood contributed at least two-thirds of aggregate output. Output and productivity in agriculture must therefore occupy the center of efforts to appraise long-run economic change prior to 1949, including developments in the prewar decades of the 20th century.

Efforts to study trends in agricultural production depend on quantitative information that is largely absent for imperial China. There are no comprehensive data on cultivated or sown area or for crop yields.¹⁰⁰ What we do have is data collected by the Chinese bureaucracy on cultivated land, which have some of the same

⁹⁹ The recently published six volume of population history of China written by the historical demographers based at Fudan University mark an important contribution. These massive six volumes authored by GE Jianxiong (vol.1), DONG Guodong (vol.2), WU Songdi (vol.3), CAO Shuji (vols. 4 and 5) and HOU Yangfang (vol.6) aimed to build up aggregate figures from meticulously researched regional or county figures. While their population figures for national aggregate will need further scrutiny by future researchers, their long-span regional level population data represents major new contribution.

¹⁰⁰ Data on sown area are preferred because of the growing role of multiple cropping. Efforts by China's Ministry of Commerce to tabulate cropping area in the early Republican years produced estimates for 1914-1918 (in volumes titled *Nongshang tongjibiao* [Statistical Tables of Agriculture and Industry]) that are filled with inconsistencies and appear virtually unusable.

shortcomings as the population figures, compounded by the lack of uniform measures of land.¹⁰¹ In light of these constraints, Dwight Perkins (1969) focuses on a researchable question: assuming that per capita grain consumption remained constant and that 80 percent of acreage was devoted to grain, how important were the intensive (yields) and extensive (increases in acreage) margins to the rise in output that accommodated the massive increase in Chinese population over 600 years from 1368 to 1968? Information on the Chinese diet and the dominant role of grains in calorie intake (with meat and dairy products occupying only a minor position in the traditional diet) helps to fix reasonable bounds on per capita grain consumption. Limited international trade in grain permits a focus on domestic supply.

Table A-2 reproduces Perkins' estimates for select years, to which we have added actual PRC data for 1977 and 2005. Perkins emphasizes the dangers of pursuing such calculations for short periods during which large error margins for changes in population or land can produce serious distortions. Over a longer period, his procedure for approximating increases in grain yields, and deriving an approximate balance between output growth from higher yields and enlarged acreage seems credible, particularly since the robustness of conclusions to alternative assumptions is easy to check.

Efforts to discern trends in regional output or for individual crops are, if anything, more difficult. Cotton, which figures prominently in the historiography, offers a good example. Domestic cotton output is a critical component in efforts to appraise the impact of China's 19th-century opening-up on the handicraft textile sector. Cotton production is also used to estimate the level and trend of cotton textile consumption, an important indicator of living standards.

Kenneth Pomeranz (2000), for example, argues that in the late 18th century per capita consumption was similar in China and Europe. Lacking contemporaneous estimates of Chinese cotton production, he turns to estimates for 1870 and 1900 by

¹⁰¹ Franklin L. Ho, a prominent prewar economist, offers the following comment on land records: research in Kaoyang [now called Gaoyang, in the North China province of Hebei] reveals the existence of two sets of assessment books – the open book used by hsien [county] magistrates and an “entirely different” record kept in secret “by the village elder as the basis for levies on the village in case of emergency. . . . Every village [that we investigated] was. . . found to have two such sets [of land records]” (Ho 1967, pp. 109-110; see also Ray Huang 1974, p. 41 and Madeleine Zelin 1984, p. 240 on Ming and Qing official land records).

Richard Kraus (1968/1980), arguing that cotton acreage and yields were the same in the late 18th century as they were a century later. Pomeranz errs in converting Kraus' output of 11.1 and 9.1 million piculs in 1870 and 1900, respectively, into pounds, arriving at a figures of 1.85 billion and 1.5 billion pounds rather than 1.43 billion and 1.21 billion, which inflate his estimates by nearly a quarter. But more important, Kraus' estimates of cotton production in 1870 and 1900 are themselves conjectures based on the assumption that per capita cotton consumption remained constant between 1870 and the 1930s. This assumption is controversial: Albert Feuerwerker analyzes the implications of alternative cotton output estimates (1970, pp. 363-371) and Thomas Rawski finds that "per capita consumption of cotton cloth during the 1920s and 1930s was approximately 50 percent higher than during 1871/80" (1989, p. 289), which would imply substantial increases in per capita cotton production (ibid., p. 93). Thus Pomeranz' conclusion that "Chinese textile consumption stacked up quite well against that of Europe in the mid- to late eighteenth century" (2000, p. 142) rests on two hazardous assumptions: that cotton production in the late 18th century was as high as it was a century later; and further, that consumption patterns remained static over the half-century spanning the late 19th and early 20th centuries. Tirthankar Roy notes that Pomeranz' estimates imply that China's per capita consumption of cotton cloth "was five times that in India [around 1750], whereas the two regions had similar GDP per head in the early nineteenth century" (forthcoming, p. 26).

National Income. Efforts to compile systematic and detailed national income accounts prior to 1949 at either the national (Liu and Yeh 1965, T. Rawski 1989) or regional (Kang Chao 1982, Debin Ma 2008) level focus on the early twentieth century.

Efforts to develop national accounts prior to 1900 include the China segments of global studies by the late Angus Maddison, lightly documented (by 20th century standards) impressions relating to the 19th century from Chung-li Chang (Zhang Zhongli 1962) and Albert Feuerwerker (1980) and for the Ming period by GUAN Hanhui Guan and LI Daokui (2010). LI Bozhong (2010) has contributed an ambitious study, modeled after the influential 20th-century study by Ta-chung Liu and Kung-chia Yeh (1965), that sets out to construct regional income accounts for a two-county slice of the prosperous and highly commercialized Yangzi delta area during the 1820s.

With the exception of Li Bozhong (2010), these studies suffer from a common problem: inability to provide convincing information about the level or growth of either aggregate or per capita output of farm products, especially food grains. Without solid estimates of grain output to form the basis of value-added estimates for the primary sector, it is nearly impossible to construct even approximate long-run estimates of national income. The substantial error margins attached to historical population figures compound the difficulties when converting estimated aggregates into per capita magnitudes. If we apply independent error margins of 10 percent to figures for output and population (assuming independence may not be totally realistic given that population figures often enter directly or indirectly into the output estimates), per capita output at any specific date is subject to an error margin of roughly 20 percent. These considerations lead to the unwelcome conclusion that, given our current state of knowledge, we face extreme uncertainty about the direction and magnitude of change in aggregate and per capita output in China's pre-20th century economy.

We see the late Angus Maddison's estimates (Table 1), with their unrivaled chronological sweep, as a form of narrative interpretation, a perspective that we hope Maddison himself would have appreciated. His synthetic work builds on the findings of qualitative scholarship and therefore must reflect the limitations of such research. In the case of the "Song peak" hypothesis discussed above, these weaknesses appear to be substantial. In the absence of new work to solidify the ambitious claims of Song specialists, Maddison's assignment of higher per capita incomes to Song than to Ming or Qing is nothing more than a minimally supported conjecture.

Li Bozhong's (2010) effort to develop comprehensive accounts for two counties in the 1820s has the merit of focusing on China's best documented region. It also avoids the complications associated with estimating time trends. While a full evaluation must await careful scrutiny of Li's extensive documentation, the crucial measurement of aggregate and per capita agricultural output appears problematic. Weather, in the form of an 1822 drought and "unprecedented" floods in 1823 and 1833, is the chief culprit (Li 2010, p. 37). The 1823 flood reportedly reduced average crop yields for rice, the mainstay of this region's agriculture, by over 40 percent during the ensuing decade (p. 395). With few local price quotations available for the 1820s (other than for the flood years, which the author discards as atypical), rice prices are based on local data

for the 1830s (p. 329) and data from major regional markets that show no flood-induced peaks (p. 335). Population data come from 1816 – before the onslaught of bad weather (p. 43). With population, rice prices, and rice yields based on information for different dates and localities, and without information showing the impact of floods on population or labor force, the author's estimates of overall or per capita output and labor productivity in the largest sector of the local economy, either in physical or monetary terms, will of necessity require large error margins.

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Map 1. Chinese Territory under Ming (shaded) and Qing



Table 1

China's Economy in Global Perspective: Angus Maddison's Long-term Estimates

	1000	1500	1600	1700	1820	1870	1913	1950	1973	1998
Absolute values										
Population	59	103	160	138	381	358	437	547	882	1243
GDP	26.5	61.8	96	82.8	228.6	189.7	241.3	239.9	740	3873.3
GDP per capita	450	600	600	600	600	530	552	439	839	3117
Relative values (World = 100)										
Population	22.0	23.5	28.8	22.9	36.6	28.2	24.4	21.7	22.5	21.0
GDP	22.7	25.0	29.1	22.3	32.9	17.2	8.9	4.5	4.6	11.5
GDP per capita	103.4	106.2	101.2	97.6	90.0	61.1	36.6	20.8	20.4	54.6
Western Europe = 100										
GDP per capita	112.5	77.5	67.1	58.6	48.7	26.8	15.9	9.6	7.3	17.4

Source: Angus Maddison (2001, Tables B-10, B-18, and B-21).

Population is in millions; GDP in billions of 1990 international dollars; per capita GDP in 1990 international dollars.

Table 2
Tax revenues in China, 1085-1776
(rice in shi)

	Per capita land tax	Per capita indirect taxes	Total taxes	Per capita tax burden	Index (1085=100)
Song (1085)	0.26	0.54	72,102,000	0.8	100
Ming (1407)	0.54-0.76	0.02-0.03	47,657,000	0.56-0.79	70-98
Ming (1577)	0.21	0.03	42,185,000	0.24	30
Qing (1685)	0.18	0.04	38,044,444	0.24	30
Qing (1776)	0.09	0.03	36,620,000	0.12	15

Source: data compiled by Professor Guanglin Liu

Table 3. Qing Central Government Annual Revenue in International Comparison

A. Aggregate Revenue(tons of silver)

	China	Ottoman	Russia	France	Spain	England	Dutch R*
1650-99	940	248		851	243	239	
1700-49	1304	294	155	932	312	632	310
1750-99	1229	263	492	1612	618	1370	350
1800-49	1367					6156	
1850-99	2651					10941	

B. International Comparison of per capita Tax Revenue (grams of silver)

	China	Ottoman	Russia	France	Spain	England	Dutch R*
1650-99	7.0	11.8		46.0	35.8	45.1	
1700-49	7.2	15.5	6.4	46.6	41.6	93.5	161.1
1750-99	4.2	12.9	21	66.4	63.1	158.4	170.7
1800-49	3.4					303.8	
1850-99	7.0					344.1	

C. Per Capita Revenue in Expressed in Days' Wages for Unskilled Urban Workers

	China	Ottoman	Russia	France	Spain	England	Dutch R*
1650-99		1.7		8.0	7.7	4.2	13.6
1700-49	2.26	2.6	6.4	6.7	4.6	8.9	24.1
1750-99	1.32	2.0	8.3	11.4	10.0	12.6	22.8
1800-49	1.23					17.2	
1850-99	1.99					19.4	

Source: see Debin Ma 2011a, with thanks to Kivanc Karaman, Sevket Pamuk, Peter Lindert and Steve Nafziger for sharing datasets.

*Dutch Republic

Conversion notes: one Chinese silver tael = 37 grams of silver.

For per capita revenue in days of urban unskilled wages, 1650-59, 1700-09 figures are used to represent 1650-99, 1700-49 respectively. Average of 1750-50 and 1780-89 are used to represent 1750-99 for all other countries except China. See <http://www.ata.boun.edu.tr/sevketpamuk/JEH2010articledatabase>. Nominal wages for China and England are for Beijing and London drawn from Robert C. Allen et al 2010.

Table A-1 Chinese Population Totals, 1393-2000				
Year	Regime	Population totals (millions)		
		Official	Ho	Perkins
1393	Ming	60.5	65 ^a	65-80
1600	Ming		≈150	120-200
1650	Qing			100-150
1700	Qing		≈150	
1750	Qing	179.5		200-250
1779	Qing	275.0	275	
1794	Qing	313.3	313	
1820	Qing	353.4		
1850	Qing	429.9	430	410 (±25)
1873	Qing			350 (±25)
1893	Qing			385 (±25)
1913	Republic			430 (±25)
1933	Republic			500 (±25)
1953	PRC	582.6		583 (±15)
1982	PRC	1016.5		
1990	PRC	1143.3		
2000	PRC	1267.4		

Sources:
Ping-ti Ho (1959, pp. 264, 270, 278, 281-282); Dwight Perkins (1969, pp. 207, 212, 216); Yearbook (2009, pp. 89-90).

PRC figures are for census years.

^a Reference is to the "late 14th century."

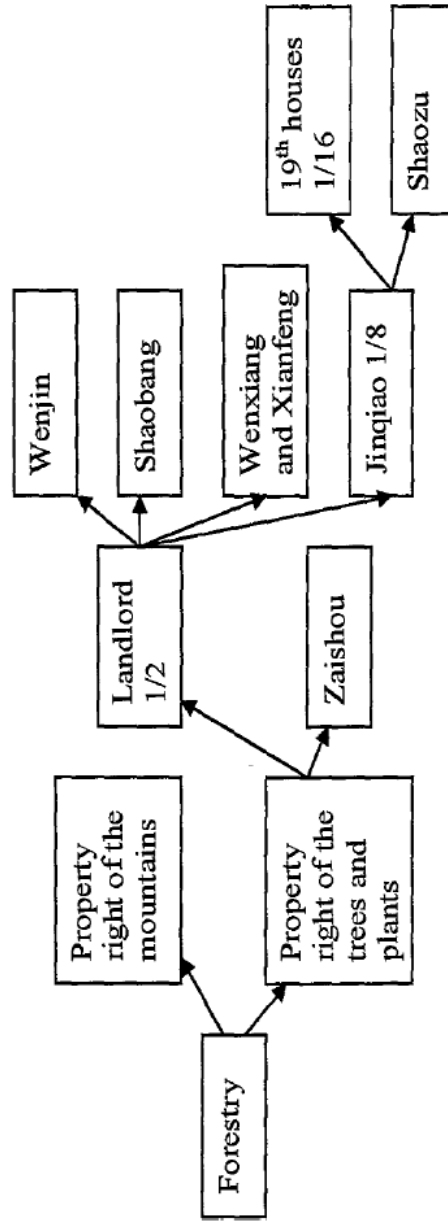
Table A-2 Long-term Trends in Cropping Area, Grain Output, Yield, and Availability, 1400-2005							
Year	Population (million)	Crop Area (million mu)		Sown to Grain	Grain Output		Grain Yield (ton/mu)
		Cultivated Area			Total (mill. ton)	Per capita (kg)	
		Total	Grain				
Perkins estimates							
1400	72	370	<i>296</i>		21	285	0.07
1600	160	500	<i>400</i>		46	285	0.11
1770	270	950	<i>760</i>		77	285	0.10
1873	350	1210	<i>968</i>		100	285	0.10
1893	385	1240	<i>992</i>		110	285	0.11
1913	430	1360	<i>1088</i>		123	285	0.11
1933	500	1470	<i>1176</i>		143	285	0.12
1957	647	1678	<i>1342</i>		184	235	0.14
PRC official figures							
1957	646	1677		2004	195	302	0.10
1977	950	1488		1806	283	298	0.16
2005	1308	1950		1565	484	370	0.31
Notes: <i>italics</i> indicate assumed figures. Perkins assumes per capita grain output of 570 catties (=285 kg) and also that 80% of cultivated land is devoted to grain. We omit Perkins' error margins and take the midpoint of his population ranges for 1400 and 1600.							
15 mu (or mou) = 1 hectare. Output figures are in metric tons.							
Sources: Dwight Perkins (1969, pp. 16-17); Compendium (2010, pp. 6, 36, 37).							

Figure 1. Transactions of share of land rights: case study of wood trading in Guizhou

The Miao mountainous area in Guizhou was an important area for forest plantation and trading of woods. The remaining documents of contracts reflected the transaction of share of property rights, a case in the first year of the Daoguang reign was amazing*

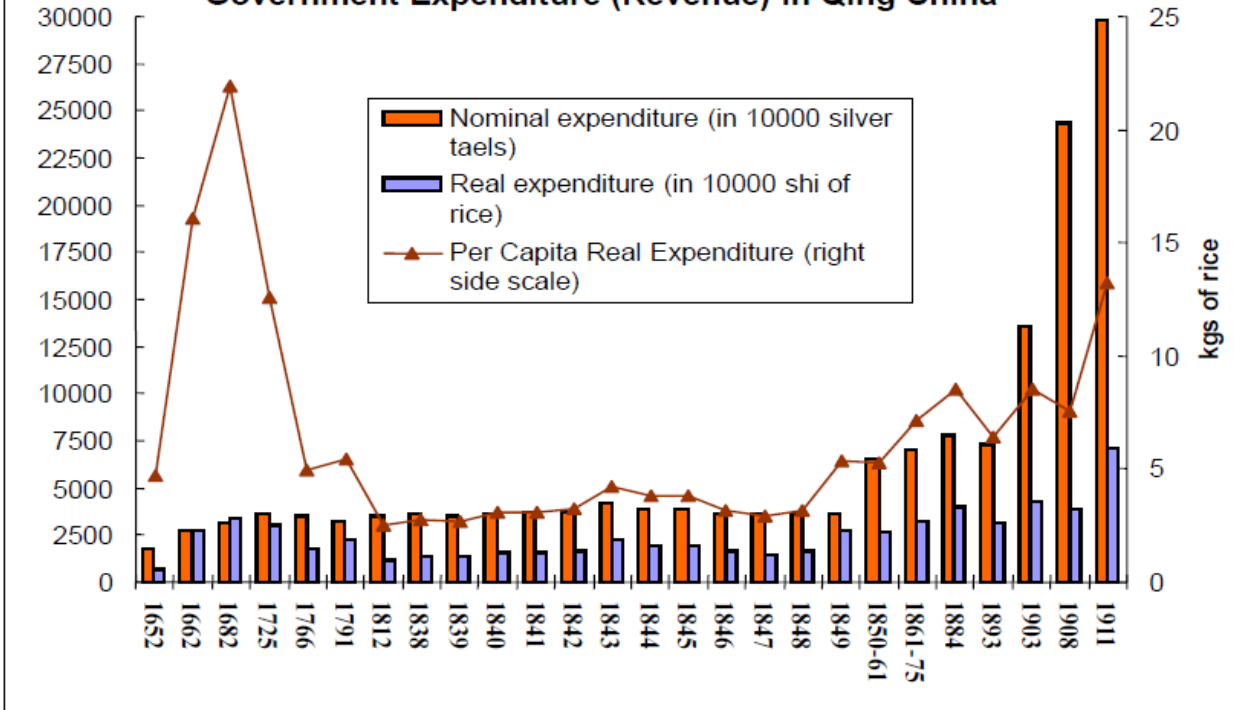
Drawers of this contract of trading Chinese fir, the Yanwan natives Fan Xianzong, Xianxui, Weyuan, Shaopei, and Shaozhai, for the lack of silver, were willing to give away a log of Chinese fir, located at Ranlou..... the right of this log would be divided into two shares, the planters took one while the landlord took the other, the landlord's share could be further divided into four shares: Wenjin took one, Shaobang took one, Wenxiang and Xianfeng shared one, Jinqiao's one share was further divided into two shares: Shaozu took one and the other one share went to the 19 households. Today the share was sold by the 19 households to Jiang Yinghui. The parties agreed a sale price of 10 *hang* 1 *qian* and 5 *fen* of silver. After the transaction, the property would be under the administration of the buyer, and the sellers' brothers and irrelevant people should not utter any protest. In fear of the lack of evidence later, this contract of sale was to be kept for examination's sake forever.

Note: the 19 households were listed in the following (including the contracts with the landlord): it is indeed the truth that the 19 households sold their share together. (There was also share division within these households. Youcai and Decui each received half of one household's share.)



Source: Long Denggao (2010), citing Luo Hongyang. "Qingdai Bongnan jinpings miao zu linye qi yue zhimaici yanjiu." *Minzu yanjiu*. 2007: 4.

Figure 2
Government Expenditure (Revenue) in Qing China



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