10

Risen from the Chaos: The Emergence of Modern Education in China

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Abstract In China, the attempt to publicly provide mass education to its population came relatively late, after the twentieth century. Replacing the traditional Confucian teaching system, a fully Western-inspired new education system was introduced at the dawn of the twentieth century as a route to national salvation. This chapter studies this critical juncture of Chinese history by first reviewing the expansion and virtues of the new system. I further discuss the driving forces and challenges. The real implementation of this national education system was highly decentralized and the de facto power was in the hands of local governments and local political elites; therefore, the variations in mass education provision across regions and through time were determined by the different preferences of local elites and the political and economic opportunities that they faced in a rapidly changing context.

Keywords Education · Political elites · China

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10.1 Introduction

The rise of public education and its effect on forming human capital has long been argued as one of the prime sources of modern economic growth. But the historical roots in the emergence of mass education are still subject to debate. Universal access to education that is at least partly provided by the state first emerged in Europe and North America from the early nineteenth century onwards, and these cases are often thought to provide an institutional model of the national development of both educational systems and more generally of social and economic progress.

The attempt to publicly provide education to its masses came relatively late to China. As a way to national salvation, a highly foreign-influenced education reform was initiated at a critical juncture of Chinese history—the modernization movement in the early twentieth century. Reformers in the late Qing dynasty called for the wholesale modernization of this ancient country, including a transformation of the educational field. The pioneers that fundamentally revolutionized education in China were missionaries. In addition to erecting their own schools, the missionaries also introduced a thoroughly Western-based curriculum into China and taught a variety of useful subjects that are markedly different from the traditional Confusion classic. However, only a small fraction of Chinese population converted to Christianity in the studied period; therefore, its economic effect was primarily through the mechanisms of setting up role models and knowledge diffusion among elites (Bai and Kung 2015; Ma 2008). The real milestone in education occurred in 1905 when the old civil service exam was officially abolished, and a new national education system approximating a Western model was implemented nationwide.[1]

Given its weak formal institution and backward economy, the emergence and the rapid expansion of mass education in early

[1]Modern education systems are distinctly different even among these successful cases, but fundamentally similar in several core characteristics: They are universal, mandatory, secular and academic. The phrase "modern education system" in this chapter refers to an education system that bears the above characteristics and contrasts with China's traditional Confucian teaching.

twentieth-century China seems puzzling. How did a withering state, which struggled with both internal turmoil and foreign penetration, establish and finance its first modern education system? Looking at the demand side, how did the general public respond to this brand-new education system that delivered an alien educational content? This chapter reviews the expansion of the first Chinese modern education system and then discusses the driving forces and the challenges of its implementation.

10.2 Setting the Scene: The Traditional Education Before 1905

For more than one thousand years, the traditional Confucian teaching system was the most important pillar of imperial China's social structure before its abolition (Elman 2008). The distinguishing feature of this system is that its foremost purpose revolved around one single institution: the Imperial Civil Service Examination.[2] The government meticulously crafted the exams to recruit bureaucrats and social elites from the best candidates. Thanks to the high economic and social rewards attached to success in this examination, China as a pre-modern society generated a high demand for education. This may arguably have led to its relatively high levels of literacy and numeracy in history (Baten et al. 2010; Rawski 1979).

However, some fundamental weaknesses were inherent in the Confucian teaching system. It shared the drawbacks of most informal and traditional educational systems. For instance, females were almost completely excluded from formal education and there was no clear

[2]The civil service examination system was implemented as early as the Tang dynasty (618–896) and had existed for more than 1000 years before its abolition in 1905. It had a deep influence on Chinese society. In fact, the university entrance examination system in contemporary China evolved indirectly from the imperial one.

regulation on schooling levels, the division of grades, or the length of schooling (Elman 2008).[3] Its strangest feature was that the Imperial government supported elite education rather than basic education (Rawski 1979, p. 24). In fact, the government only contributed to the direct financing of the exam, together with advanced schools admitting none but established scholars, whereas little effort went into providing basic education to the masses. Because of the absence of public provision for elementary-level education,[4] the responsibility for educating children had mostly been assumed by private households and local communities (Borthwick 1983; Rawski 1979).[5] Second, the educational content was very distant from both modern scientific inquiry and practical economics (Elman 2008, pp. 53–64).[6] The curriculum focused entirely on the Confucian classics, and largely dis-incentivized young talents in China from seeking a wider spectrum of knowledge.[7] Ancient canons and classic articles were used as textbooks for further training in writing, reading and critical thinking. This strikingly narrow focus on Confucian study was widely criticized by both the reformers and

[3]Under the traditional system, one may spend many years preparing for multiple ranks of examinations without being able to predict the length of schooling (Elman 2008; Xu et al. 2013). On average, basic training in classic canons, poems and articles took 6–7 years, and several more years were spent in writing eight-legged essays. Most lower degree holders (*Shengyuan*) enrolled in government schools in their twenties, and most of the top degree holders (*Jinshi*) finished the final Palace exam when they were 35–37 years old (Chang 1955).

[4]There were two types of public school that also provided elementary education: Yixue (charity school, 义学) and *Shexue* (community school, 社学). However, their share in total elementary education was small; according to Rawski (1979, pp. 33–36), over the Qing dynasty about 13,400 out of 40 million school-aged boys enrolled in these publicly provided elementary schools.

[5]The most commonly seen educational institutes providing elementary-level education are collectively called private popular schools (*Sishu* 私塾), i.e., single-teacher operations run for profit. *Sishu* literally means private schools. They vary a great deal from every standpoint (Rawski 1979, pp. 44–53), and more detailed elaboration of them is outside the scope of this study.

[6]Classical education in medieval Europe shared similar drawbacks to China's in that the curriculum was at first based on religious principles and the medium of teaching was Latin.

[7]The content of the civil service examination was very narrowly focused. In order to excel in it, the core of the traditional curriculum was accordingly focused on "Confucian learning" (儒学 *ruxue*) only. The curriculum experienced a slight change through time. After the Qing period, it mainly consisted of three parts: (i) a common classical language; (ii) memorization of a shared canon; and (iii) the ability to write elegant essays, known as 8-legged essays (Elman 2008, pp. 46–93).

scholars at the time and had long been accepted as one of the explanations for China's falling behind (Clark and Feenstra 2001; Huff 2003; Landes 2006; Lin 1995; Yuchtman and Cantoni 2013).

This long-standing education system came to an abrupt end in 1905, and its most valuable legacy probably lies in China's solid cultural foundation, which always highly valued education.

10.3 The Modern Education System in China

From the middle of the nineteenth century, both the encounters with Western powers and internal turmoil threatened the Qing throne (AD 1644–1911) in pursuit of change. The Chinese government at first adopted a defensive posture under the pressure of conservative officials and traditional elites. More thorough reforms became inevitable after China's defeat in a series of wars against the West and Japan.[8] There were intense discussions among the intellectuals and within the government on the urge to modernize China, and Meiji Japan was often considered a role model.[9] The Qing state did not await its downfall without exploring ways forward. Thus, a number of Western-influenced reforms touching various aspects were implemented nationwide, including reforms in the field of education.

An increasing number of studies provide empirical evidence on the positive association between the introduction of Western ideas and institutions and China's economic development in the late nineteenth and early twentieth century (Ma 2008; Jia 2014; Bai and Kung 2015). As an essential part of this Western-influenced modernization movement, however, the economic and social impact of the emerging system of mass education during the period in question remains unclear.

[8]From the 1860s, we can list two opium wars, the first Sino-Japanese war, the Franco-Chinese war and occupation of Peking by 8 nations after the Boxer rebellion.

[9]For instance, one government official stated that "the military successes of Meiji Japan were a model for China and that emulating the Japanese would require expanded education in the sciences and industry" (Elman 2009, p. 201).

10.3.1 Virtues of the Modern Education System

The remodeling of the education system in China was a long journey, through which many plans were drawn up and a number of regulations were established. A memorandum was unexpectedly issued to abolish the Civil Service Exam system at all levels on September 2, 1905. Throughout the first half of the twentieth century, five education acts were passed under three different governments.[10] Altogether, they provided a roadmap and laid regulatory foundations for China's first modern education model from many perspectives, including the administrative arrangements and the structure of education. Most of these education acts remained no more than unrealistic blueprints which failed to be fully implemented in practice; however, the ambition and aspirations of the state were loud and clear. By the end of the 1940s, the key elements of the modern education system were largely in place.

[10]A total of 5 education acts were passed in the first half of the twentieth century.

Act	Passed by	Major progress
Education Act 1902	Qing Court	Outlined the foundation of the first modern educational system Failed to be implemented
Education Act 1904	Qing Court	The first education act was put into practice. Very similar to the Education Act 1902
Education Act 1912	Nationalist Government	Lower-primary education became compulsory Female students were included in primary school
Education Act 1922	Beiyang Government	The structure of schooling changed to 6-3-3 The regulations on vocational and normal education were modified
Education Act 1928	Nationalist Government	No major adjustments

10.3.1.1 Growing Public with a Special Focus on Primary Education

In contrast with the absence of publicly provided elementary-level schools under the traditional system, the state became more supportive of primary education under the new system, while the private sector was allowed to play a greater role in high-level education. Since the literacy rate in early twentieth-century China was much lower than the level in Western countries[11] and the rates of return in the late industrial nations are generally believed to be higher for primary schooling than for further education (Psacharopoulos 1981; Psacharopoulos and Patrinos 2004), the greater public effort that went into primary education throughout this stage was reasonable. From Figs. 10.1 to 10.2, we see that the proportion of public primary schools rose from 75% in the 1910s to 95% in the 1940s, whereas the public schools' share in secondary schools actually dropped, especially during the wartime period. In 1912, most secondary schools were public (87.9%), and this ratio dipped to 55% by 1945.

10.3.1.2 Curricular Transformation

The most far-reaching improvement was probably in the changes in educational content. Not all educational content transmits the same human capital, and it becomes more and more clear that the differences in the educational content across countries and over time play an important role in explaining difference in economic development. As discussed in the previous section, the shortcomings of the narrow

[11]There are no systematic data reporting the national literacy rate in China during this period. Perkins estimates that less than 50% of males over the school age in 1880s could be regarded as literate (Perkins 1975, p. 4). Rawski argues that even though the variation could be remarkably wide across regions, a rough guess at the literacy rate during the late Qing might be 30–45% for males and 2–10% for females (Rawski 1979, pp. 8–23). If these estimates are valid, nineteenth-century China had a very similar level of literacy to that of late Tokugawa Japan, where the rate for men was estimated at 40–50%, and for women at 13–17% (Ohkawa and Rosovsky 1973, p. 8).

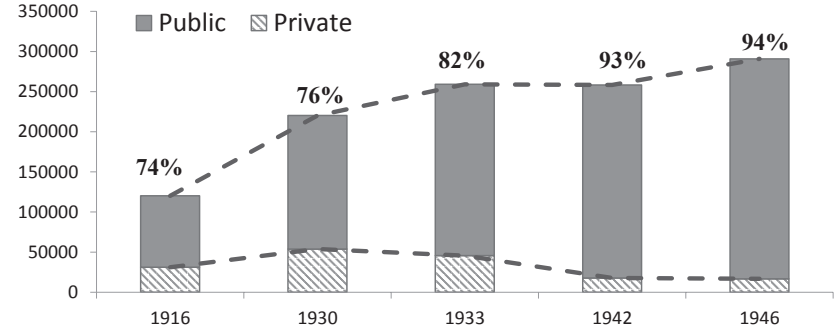

Fig. 10.1 Primary schools (public *vs.* private) (*Sources* (i) Zhonghua minguo jiaoyu tongji tubiao [The education statistic report for Republic of China, fifth] 1916, (ii) Quanguo Chudeng Jiaoyu Tongji [The statistic report on primary education] 1930, and (iii) Quanguo Chudeng Jiaoyu Tongji [The statistic report on primary education in 1933], 1937. *Note* This figure represents the share of public schools)

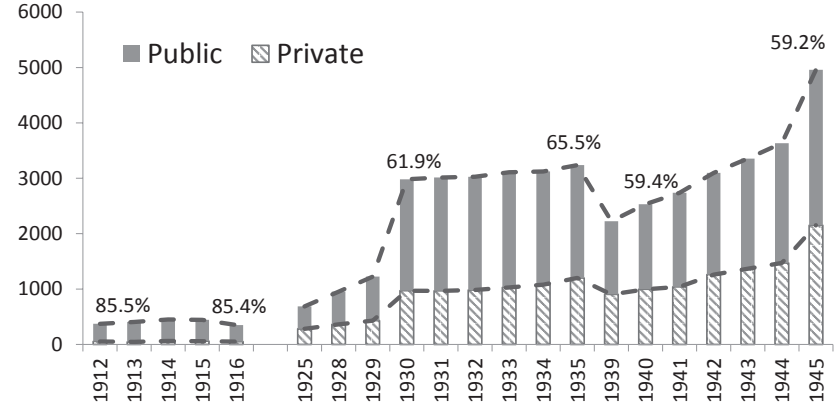

Fig. 10.2 Secondary schools (public *vs.* private) (*Source* Yang [1934, p. 193], Zhu [1948, pp. 1429–1430]. *Note* The figure represents the share of public schools)

focus of the Confucian teaching content had been realized in the late nineteenth century. The Chinese state started to see that Western subjects, especially science and engineering, could modernize the military, improve technology, and therefore enhance the Chinese economy.

Reforms in educational content began with very cautious steps in the late nineteenth century. The ambiguous attitude to educational content reform from conservative officials and traditional elites was mainly because these elites were selected by the traditional education system, and questioning the curriculum would compromise the legitimacy of their qualifications (Yuchtman and Cantoni 2013; Gao 2018).[12] Therefore, they felt that any investment in modern human capital beyond what was absolutely necessary to modernize the military was a threat to their positions of power.

The pioneers were a small number of military arsenal schools and language schools that were established first to provide training that was especially needed for the adoption of Western military technologies (Elman 2009). Missionary schools where foreign languages and Western subjects were taught first appeared in treaty ports and then penetrated quite widely across China. Stauffer's survey shows that missionaries established lower primary schools in 61.1% of the Chinese counties in the 1920s to spread modern knowledge (Stauffer 1922).

Thorough changes occurred only after 1905 when the old exam system was officially abandoned. The state drafted regulatory models for a new curriculum for each level of schooling, which included new academic learning, technological know-how and new ideological campaigns. As examples, Table 10.1 presents the changes in the primary school curriculum from 1904 to 1948. It is clear that the weight given to the Chinese classics drastically declined, and new subjects, such as mathematics, physics, geography and foreign languages and new moral doctrines, were introduced. Furthermore, instead of Confucianism, new moral doctrines such as nationalism, democracy and later the "Three Principles of the People" were pushed through the expanding education system to the masses.[13] A similar pattern can be observed in the

[12]In 1898, reforms in educational content would be implemented during the "100-days reform (戊戌变法)," but then the conservatives re-asserted themselves (Zarrow and Karl 2002).

[13]The "Three Principles of the People" is a political philosophy developed by the founder of the Republic of China—Sun Yat-Sen. These three principles are often translated and summarized as nationalism, democracy and economic security (民主, 民生, 民权) (Lary 2007, p. 21).

Table 10.1 Regulatory models for primary school curricula (%)

		1904	1912	1922	1936	1948
Chinese and Confucian classics		35	20	20	17.5	15
Maths		10	15	17.5	15	12.5
English		10	15	17.5	15	15
Social science	History Geography	20	15	15	10	15
Natural science	Physics Chemistry	10	10	10	12.5	17.5
Art and PE		10	10	10	15	10
Manual work		5	15	10	15	15

Source Shu (1928, p. 79)
Note This table presents the composition of course credits for primary school students

curriculum models for secondary schools with less study of the Chinese classics and more stress on modern subjects in the new content.

Another improvement was the establishment of multiple schooling tracks to diversify the educational content. The higher-level education developed a structure of parallel tracks for general, vocational and normal schools.[14] General schooling emphasized academic learning. For the first time, vocational and normal education were also incorporated into the formal education. Vocational training provided job-specific skills for specific trades and occupations, while normal education that targeted teacher training was credited with its essential importance too, especially to a new education system that lacked eligible teachers. The total number of students in vocational schools in 1912 was around 32,000; this figure rose to 50,000 in the mid-1930s (Zhu 1948, p. 1428).

10.3.1.3 Gender Neutrality

Another virtue that was introduced by the new education was the rising practice of gender neutrality. Gender educational inequality is shared by many developing countries in the early stages of development and

[14]Of the three tracks, there is no denying that the progress of general schooling dominated, occupying 60–70% of secondary education.

culture. In Chinese history, females had always been excluded from formal education.[15]

In the rise of female education, two patterns are worth highlighting. First, the pioneers were missionaries (Lu 1934). In 1844, Miss Aldersey established the first mission schools specifically for girls in Ningbo. Then a great number of missionary schools exclusively for girls were established in other cities. Another growth engine was the widespread of normal schools, because teaching was one of the very few acceptable career options for women.[16] Before 1930, the proportion of female students in secondary schools never exceeded 4%, but it accounted for about 18% of normal school students (Tao 1923, p. 4). Normal school graduates were guaranteed job opportunities after graduation[17]; therefore, teaching became the most popular career choice for the "new women" of early twentieth-century China.

From the available data, the share of female students attending senior primary school was 6% in 1923, and this figure had increased to 15% by 1930 (Li 1997, p. 729). More abundant details of secondary schools were documented. After 1916, female student numbers in secondary schools began to rise at an unanticipated pace, and the share rose from 1% in 1912 to 26% in 1946 (Yang 1934, p. 194).

Overall the new education system boasted several virtues. First and foremost, the new system was intended to make schooling available to the whole population; and for this reason, the system was largely publicly funded. Second, the educational content was substantially transformed, from focusing only on the Confucian classics to partly incorporating Western subjects.

[15]Women from the higher social classes, e.g., gentry families, may have received some home education, focusing on Chinese literature and female ethics.

[16]The proportion of females in secondary schools did not exceed 4% before 1930, but the girls accounted for about 18% of normal school students (equivalent to secondary school) (Tao 1923, p. 4).

[17]Students in normal schools were exempt from paying tuition fees, and their living expenses were also covered by public funding. In recompense, after graduation, they had to serve at least three years in a local primary school (Li 1997).

10.3.2 Measuring the Expansion of Modern Education

How fast did mass education expand in early twentieth-century China? Looking at primary education first, the share of schools that were publicly provided rose steeply in the first four decades. Enrollment ratios rose from 1.2% at the beginning of the twentieth century to 12% in the 1930s, which is a similar level to that in India (11.3%) and rather lower than Brazil's (21.5%) (Lindert 2004, pp. 91–93). Unfortunately, the pronounced rise in primary schooling was interrupted by the upheaval of the Japanese invasion in 1937, which was then followed by a 4-year Civil War between the Communist Party and the Nationalist Party. The enrollment ratio dropped sharply in wartime and recovered so slowly after the war that the pre-war level was not regained until 1947.

For secondary and tertiary education, the progress of which must be based on a large pool of primary schools, the early twentieth century does not appear to be a time of rapid expansion. In 1907, only about one in every 1000 (0.1%) school-age children attended secondary school, and this figure was far lower than the level of India (2%) or Japan (13.9%). The speed of secondary schooling expansion accelerated only after the 1920s, which may be attributed to the separation of lower secondary school from higher secondary school in 1922 (Shu 1928, p. 80).[18] As regards tertiary education, its scale remained minimal throughout the studied period, with high regional disparity.[19] The enrollment ratio was below 0.1% before the 1940s.[20] To put these figures into perspective, the tertiary enrollment ratio for Japan at this time was 4.05%, and in India 0.48%, i.e., more than 4 times the level for China.[21]

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[18]Issuing lower secondary school diplomas to students who finished 3 years of secondary schooling partially accounted for the significant decline in the number of dropouts.

[19]60% of universities were concentrated in Beijing and Shanghai.

[20]Tertiary education includes universities (4-year program) and colleges (usually institutions that offered a 2-year program).

[21]One thing worth stressing is that the Japanese invasion did not hugely damage tertiary education. Most of the universities, located in big cities, were able to take advantage of the relative safety of the international settlements and French concessions in these cities. Meanwhile, the universities located in occupied China did not cease to operate; they merely fled south and continued to function throughout the war.

Even though the post-1949 period is not the focus of this chapter, it is worth briefly outlining the general expansion of education after the founding of the People's Republic of China. Public education after 1949 expanded quickly but suffered several drastic disruptions. The rapid increase can be partly attributed to the state efforts to provide educational opportunities for all social classes, which aligns with the Communist Party's political ideology (Chen 1974, pp. 59–84). The jump in the enrollment ratios can also be regarded as a bounce back after the low wartime level though the rising trend experienced several significant fluctuations. The first dip occurred during the Great Leap Forward (1959–1962), while the more extensive slump was due to the infamous Cultural Revolution (1966–1976).[22] What disrupted tertiary education most was that the university entrance examination was abolished and universities were shut down for almost a full decade (Deng and Treiman 1997).[23] The sustained rise in education and the achievement of universal primary education were seen only in the 1980s, after almost a century of endeavor in educational development (Table 10.2).[24]

[22]Although the damaging effect of the Cultural Revolution is generally regarded as continuing for some 10 years, there was a gradual "return to normality" throughout the 1970s, since universities began to reopen in 1972. But the quality of education remained low, because educational opportunity was still tied to political conformity and family origin, not to academic performance. Contrary to what one might have anticipated, the primary schooling enrolment ratios managed to maintain the increasing trend after 1968 throughout the late Mao period. Unlike higher education, most primary schools continued to operate during the Cultural Revolution. By the 1980s, almost every commune had its own primary school; however, the quality of education was considerably compromised.

[23]The university entrance examination was restored only in 1977. The rise of tertiary education accelerated after the 1990s when private universities were re-introduced in 1994.

[24]The Law on Nine-Year Compulsory Education, drafted on July 1, 1986, established requirements and deadlines for attaining universal education tailored to local conditions and guaranteed school-age children the right to receive at least nine years of education (six-year primary education and three years secondary education).

Table 10.2 Enrollment rates per 1000 school-age population, 1900–1950

Year	China		
	Primary	Secondary	Tertiary
1907	12	0.7	0.07
1916	47	1.7	0.07
1922	72	2.0	0.05
1933	119	7.5	0.05
1949	214	20.7	0.21
	India		
1900	47	21.2	0.9
1910	65	35.1	1.3
1920	80	42.1	2.6
1930	113	65.7	3.1
1950		166.1	10.8

Source

i. For China, the enrollment data come from Yearbooks on Education in corresponding years; and population and age structure is from Hou (2001)

ii: For India, data come from Lindert (2004, pp. 91–93)

10.3.3 The Decentralized Education System and School Financing

This rapid expansion of the mass education system that also delivered a new curriculum was implemented and financed under a highly decentralized education system, where the degree of decentralization was greatest for primary education. Except for curriculum design and tertiary education, which were highly centralized, educational decisions were all delegated to local governments.[25] The provincial governments undertook the responsibility of providing secondary schooling, and county/sub-county governments for primary schooling. This meant that, apart from curricular design, the major implications and financing of public primary education, which constituted the greater part of public education at this stage, were left entirely to county and sub-county governments.

[25]If all educational decisions are made at the local level, the system is highly decentralized. However, in practice many education systems are partly decentralized and somewhere between the two extremes (UNESCO 2013).

Table 10.3 presents the composition of schools by management and shows that the degree of decentralization increased downwards through the schooling levels, primary education was the most decentralized. From Table 10.3, the percentage of national and provincially administered primary schools never reached more than 1% of the total of primary schools, suggesting the marginal role of the central and provincial governments in this respect. International comparisons help to put China's figures into perspective. Roughly 70% of Prussia's primary schools in the 1880s were funded by local taxes; the figure was similar for the USA. In contrast, England had a rather centralized schooling system before the 1880s; less than 20% of primary schools were financed by local governments (Lindert 2004, pp. 116–117). In contrast, majority of tertiary schools were provided by central government directly.

Given that during the studied period, Chinese state faced high fiscal pressure, how were local public primary schools financed? Local governments, the real providers of the public primary schools, often faced severe fiscal constraints. Their budgets needed more than one source of revenue; their funds came from various sources, including local surtaxes,[26] rent from public land, and donations from wealthy residents, as well as parental contributions (tuition fees) (Liao 1936; Liu 1935; Chauncey 1992).[27] In order to better understand how primary schools raised funds, this research drew on more than 400 available county government balance sheets on educational finance in the 1930s.

[26]Under Qing rule, county government should work only as a state agent in tax collection. Apart from a minimal amount retained to support basic government operations, most of the tax revenue was remitted to the provincial level and then to central government (Marianne 1985; Zelin 1984, pp. 26–62). However, the collection procedure was carried out by the county governments; therefore, the common practice of charging permissible surtax for local use on local projects was widely seen.

[27]To show the austerity of public primary school, on average one primary school could accommodate only about 50 pupils. Local primary schools are also often recorded as occupying the older property of a traditional academy that was renovated to form a new schoolhouse. Sometimes Buddhist temples and traditional Tangs, where local people worshipped their ancestors, were confiscated for use as new schools (Gamble and Burgess 1921, p. 130). The conditions were so modest that these schools often lacked on-site toilets (Liao 1936, p. 69).

Table 10.3 Schools by management, 1910s–1940s

Year	Tertiary school (%)			Secondary school (%)			Primary school (%)			
	National	Provincial	Local	National	Provincial	Local	National	Provincial	County	Grass root
1916	16.9	83.1	0	0.5		99.5	0.04		99.96	
1930	32.1	67.9	0	0.7	25.5	73.8	0.01	0.01	35.01	64.17
1933	49.1	50.9	0	0.8	26.9	72.3	0.01	0.01	21.05	78.19
1940	66.1	33.9	0	4.6	35.2	60.2	0.01	0.01	50.99	48.82
1945	64.4	35.6	0	3.9	30.5	65.5	0.02	0.02		95.76

Sources Zhu (1948)
Note This table presents the composition of schools by the authority in administrative ownership

Table 10.4 The revenue composition for public primary education

	All	Hubei	Shandong	Henan	Zhili	Jiangsu
Surcharges	**63.7**	41.49	70.4	76.7	59.62	70.29
Collective land	**17.8**	43.51	12.9	16.33	8.53	8.19

Note This table presents the revenue composition for the primary education by province. The above table presents data from Hubei, Zhili, Jiangsu, Shandong and Henan. (In the 1930s, a number of provinces published government reports on education enclosing statistics at the county level, but the informativeness of these reports differs significantly across provinces. Only five carefully document the source and composition of educational income)

As Table 10.4 shows, the two most important sources of funding for public primary schools were local tax and revenues earned from collective endowment. Looking at tax first, revenues from various types of local surcharge accounted for more than 60% of the budget. In theory, county governments had no official fiscal capacity to retain such high level of tax revenues for local use; thus, these surtaxes can be regarded as non-statutory revenues.[28] There are many historical narratives that mirror our findings in county balance sheets that fiscally stressed local governments resorted to informal practices to raise funds throughout the early twentieth century (Chauncey 1992; Liu 1935; Remick 2004, pp. 37–39; Sun 1935; Wang 1973).

Apart from tax revenues, the rents earned from community-owned land made the second largest contribution.[29] My sample shows that

[28]It is clear that local governments levied various surtaxes and other forms of commercial charges to fund local projects, including primary schools. For instance, Shandong and Zhili provinces first began to allow local governments to levy surcharges on land tax for local flood control and famine relief after the severe flooding of the Yellow River in 1903; these opened the door to surcharges on the land tax, which then became prevalent across China. The central state made great efforts to consolidate the excessive local taxes after the collapse of the Qing dynasty. However, local taxation was well beyond control. Throughout the first few decades of the twentieth century, increasing varieties of surcharges on land tax were enforced, and the tax rates of these newly issued items rose drastically, far exceeding what the state regulated. For instance, according to contemporary documentation, as many as 673 new items were taxed by county governments, which made the systematic management of land tax impossible (Liu 1935, p. 187; Sun 1935, pp. 213–217).

[29]The system of endowed school land (学田) emerged very early during the Northern Song period (960–1127) and matured in the Qing dynasty. In general, endowed school land was land bestowed by the Court or donated by local elites and used exclusively to support traditional academies, including county academies and prefectural academies.

17.8% of the funding in the 1930s came from the rents of endowed school land, which echoes the findings in Ding County (Gamble 1954, pp. 200–201). Gamble finds that the operation of 47% of Ding County's primary schools depended to some extent on rents from collectively owned land (Gamble 1954, pp. 200–201).

Taken together, like the successful experiences in US and some European nations in the nineteenth century (Lindert 2004, pp. 104–105), the substantial expansion of mass education in China was conducted under a very decentralized education system. The increasing number of public primary schools was mainly financed by local money. With highly unequal economic development across regions and no political participation granted to the mass, China's highly decentralized modern education system allowed public education to rise in some regions before it did in others (Chaudhary et al. 2012).

10.4 What Explains the Emergence of the Modern Education System?

A large body of existing literature has pointed out the factors that may contribute to the introduction of mass education, such as institutions (Acemoglu et al. 2002, 2014; Engerman et al. 2009), political structure (Lindert 2004; Gallego 2010; Go and Lindert 2010; Mitch 2013), fiscal capacity (Bardhan and Mookherjee 2006) and preferences of elites (Chaudhary et al. 2012; Gao 2018). The emergence of the mass education in China was also a product of many political and economic forces.

10.4.1 National Survival Strategy Under Global Forces

From historical accounts, the birth of mass education was often incorporated within the process of state-building in the global context. "Mass schooling did not arise spontaneously from popular demand or from the action of market forces alone. It was to a large degree organised from above by the state" (Green 1990, p. 297).

The state has a large stake in guiding the design of education because different types of education system can lead to very different economic developments, political institutions and state capacity (Jones 2008; Yuchtman and Cantoni 2013). In addition, the state also has a compelling interest in education, an interest which also stems from its urge to forge a indoctrinatory, political or religious uniformity as a modern state and to cement ideological hegemony (Green 1990, p. 298; Ramirez and Boli 1987),[30] because education not only transmits knowledge but also cultivates a set of common values to shape people's beliefs and preferences (West 1965, pp. 70–86). Three historical factors have shown themselves to be generally relevant for the rise of mass education system: external military threats, internal revolution and programs seeking to escape economic underdevelopment (Green 1990).[31] At the turn of the twentieth century, the withering Qing China experienced all three of the above, and it explains why the state-led educational reform was initiated at the point when it was.

Defeat in a series of wars against the West and Japan changed China profoundly. There were intense discussions on the need to modernize China. Taking Meiji Japan as a role model, a number of Western-influenced reforms touching various aspects were implemented nationwide. A full-scale political reform was drafted in 1901,[32] which included experiments in constitutional practice at the national level, as well as representative governments at the local level (Chien 1950, pp. 52–55; Ichiko 1980). Such drastic political and bureaucratic reforms

[30]In Europe, religious and philosophical groups had long been predominant in education. It is clear that government intervention in education starting from the nineteenth century was an endeavor to establish a national education, which could monopolize not only educational resources, but also rising nationalism.

[31]The formation of a national education system began across Europe in the nineteenth century, initiated by thriving "national sentiment" (Ramirez and Boli 1987). Later, the mass education movement in America between the nineteenth and twentieth centuries is also argued to have been largely a political outcome of the surge of independence and democracy (Bowles and Gintis 1976; Dewey 1916). Similarly, the Communist and Socialist educational "brainwashing" in the Soviet Union, the Eastern Bloc and later China between the 1950s and 1980s, also pursued a single goal—the communist indoctrination of the populace (Lott 1999).

[32]The throne issued an imperial edict in 1901 calling for reform proposals and initiated the era of the dynasty's "New Policy," also known as the "Late Qing Reform."

required brand-new talents and ideologies to support them, which perhaps also paved the way for the educational movement of 1905. In short, the introduction of mass education that delivered a modern curriculum clearly demonstrated the ambition of the Qing state, which viewed it as a national survival strategy.

10.4.2 The Positive Role Played by Local Elites[33]

The education system is not solely a product of government that can be imposed only from the top-down. On the contrary, significant educational progress in human history has often been initiated by increasing demands from civil societies.[34] The decision of the central government alone cannot explain the rise of mass education in China; the implementation required efforts from the grassroots. As discussed in Sect. 10.3, since the provision of public primary education was decentralized to local governments, with the absence of representative local democracy, the elites were able to capture local governments and influence education policy; hence, they played the most important role in the rise of modern education in China (Chaudhary et al. 2012; Gao 2018).

When control of education is decentralized in societies with no franchise like China, schooling outcomes can be ambiguous. Local officials naturally have no democratic accountability toward local residents. Thus, the decision-making process is not determined by the popular wills of local residents, but rather by the political dynamics—the

[33]It is worth noting that the meaning of local Elites in Imperial China was very different from the meaning of aristocrats in the Western context. China had used a civil service exam system to recruit its officials and social Elites for one thousand years; thus, its most important elite group was degree holders or literati. By passing a series of exams, a very small percentage of the top degree holders became state bureaucrats (national Elites) and attained offices outside their home provinces, while a much larger group of lower degree holders, with no eligibility to held official posts, constituted the elite group at the local communities.

[34]For instance, before the compulsory education law drafted in the USA, many states had already spontaneously provided compulsory secondary schooling for their citizens (Goldin and Katz 2009).

equilibrium achieved between the preferences of various veto interest groups.

In the absence of a European style aristocracy and no official government below county level,[35] local elites shaped the political fabric and social structure of local society in various forms. As the de facto power holder, local elites could dictate the use of tax revenues to provide mass education, while they could also play a more damaging role, limiting the public funding of schools in pursuit of their own interest in maintaining their power and status as elites. Thus, the variations in mass education provision across regions and through time were determined by the different preferences of local elites and the political and economic opportunities that they faced in a rapidly changing context.

The incentive to support local mass education changed with the educational reform of 1905, as the power of the old elites crumbled, and potential new entrants saw an opportunity to rise to prominence and consolidate their social and political influence. Before 1905, local elites were the ones who obstructed the introduction of modern education. Their legitimacy as political elites came from the Confucian teaching system and thus questioning the curriculum challenged their qualifications. This changed entirely in 1905 when the traditional exam system was officially abolished. Recent studies show that the response of these traditional elites post-1905 was devoted to gathering the fruit of such institutional changes. While Jia and Bai argue that some of these elites turned to support the revolution, an aspect that may have contributed to the fall of the Qing dynasty (Bai and Jia 2016). Gao finds that these elites adapted quickly and contributed to the implementation of the nationwide modernization reforms at the local level (Gao 2018). They increased their activities in the public domain to re-institutionalize their status as elites. By implementing nationwide modernization reforms,

[35]The direct state control never penetrated beyond county level (Deng 2011, p. 26; Qu 2003, p. 5), the daily life of people was organized in the natural village. The village was not a state administrative unit; therefore, the head of a village was not a state official either. The village head was often chosen from local elites. In fact, the lower degree holders held most of the influential and lucrative posts, including village heads, relief managers, tax agents, clerks for magistrates and others (Chang 1962; Duara 1988, p. 159; Wakeman and Grant 1975, p. 4).

they strove to gain legitimacy and recognition in local communities as elites. Since education was a major field of reform, their efforts concentrated on it, although not exclusively (Chang 1955; Qu 2003).

The role of political elites in the rise of growth-enhancing institution, like mass education, has been widely discussed. On the one hand, many studies stress that landowning elites had a negative effect on the emergence of public schooling in history in order to maintain their political power and economic rents (Cressy 2006; Acemoglu and Robinson 2006; Galor et al. 2009; Cinnirella and Hornung 2016). On the contrary, enlightened industrial capitalists were believed to contribute to the rise of public education out of their own economic interests (Galor and Moav 2006; Squicciarini and Voigtländer 2015). China's case is an interesting example that shows how elites could respond to changes of incentive and play an important role in provision of mass education.

10.5 The Challenges in Real Implementation

10.5.1 Resistance from the General Public

Despite the seeming virtues of the modern education system, to a great extent at first the general public showed little interest or understanding of the new education system. The new system was considered a severe threat to the enduring social norms and conventions of local residents. For instance, many of the schoolhouses for modern primary schools were converted from traditional academies[36] or ancestor halls where local residents worshiped their ancestors. These establishments were regarded as the most important symbols of the legitimacy of traditional culture, but many of them were confiscated by the modern schools. In 1912, the newly Republican government even started a new program known as the "Temple Destruction Movement," where local governments were encouraged to seize the Buddhist and Taoist temples to

[36]The academies under the traditional education system were by modern standards equivalent to public higher education institutions.

support modern schools in the local areas. Such destruction was massive in magnitude that some studies suggest that it accounted for more than 70% of public primary schools constructed in the first half of twentieth-century China (Wang and Zhang 2018). There was widely seen resistance to such movement.

Another reason for such strong resistance was also a fiscal matter. The increasing tax burden (see Table 10.4) fell on all local residents, whereas the benefits of the modern schooling system were not evenly spread. For an average Chinese resident, the much more expensive modern school system, proudly providing Western subjects, failed to appeal to ordinary peasants who had to pay for it. Zhang and Ding record a full list of protests and riots between 1901 and 1911. Of the 450 protests recorded, 17 were attributed to the levying of a new tax to support modern education (Zhang and Ding 1982).

What best illustrates people's slow and limited acceptance of the new system is the fact that, despite the official curtailment of traditional education in 1905, a large number of traditional-style primary schools persisted as substitutes for modern primary schools throughout the early twentieth century.[37] In order to promote modern education, the state even officially banned the legitimacy of *Sishu* altogether after 1928 (Liao 1936).[38] Yet they continued to play a big role in the basic education of the population throughout the first half of the twentieth century.[39] The long-lasting popularity of the traditional popular schools was caused not only by its traditional curriculum, but also by its relatively low tuition fees and easy access. According to regulations from the Ministry of Education, the yearly fee for lower primary schools

[37]As discussed, under the traditional schooling system, the educational institutes serving the function of spreading basic education were collectively called *Sishu* (Deng 1997, pp. 6–8; Rawski 1979, pp. 24–33).

[38]After the collapse of the Qing dynasty, to address the persistent popularity of *Sishu* across the country, a series of regulations was launched calling for their improvement to a standard comparable with the modern primary schools (Borthwick 1983, p. 81). None of these reform programs achieved very much.

[39]The *Sishu* remained widespread only until 1949, when the Communist Party forcibly swept them out. In order to transform China into a socialist state-ownership system, on accessing power the Communist party demolished the whole private sector. Along with this economic and political line, all private schools, including *Sishu*, were forced to disappear (Deng 1997, p. 8).

was around four yuan (twelve yuan for higher primary schools), while a child attending *Sishu* was charged less than two yuan (Wang 1994). According to Tao, the actual enrollment ratio for primary education in China should at least be doubled, if these traditional popular schools are taken into account (Tao 1923, p. 6).[40]

10.5.2 Insufficient Teachers

Apart from people's resistance, there were many other challenges. As discussed, a number of education acts were drafted to provide a roadmap for the modern education model; unfortunately, the implementation of the modern education system sometimes bore at best a limited resemblance to this roadmap. Especially for elementary-level schooling, insufficient numbers of eligible teachers, resistance from the local people and a lack of funding all impeded substantial progress.

For instance, given that one of the principal proposals of the new educational model was to transform educational content, the government placed explicit eligibility requirements on teachers for each level of schooling. It was essential to appoint eligible teachers who had the academic capacity to deliver the right training to students. In their recruitment, educational attainment stood as the main criterion. For a primary school post, only graduates of normal school (equivalent to secondary school) were eligible (Wang 1994). For a secondary school post, a degree from a higher normal school (equivalent to university) was required (Wang 1994). But the regulations on the criteria for teachers did specifically note that exceptions could be made when a school committee approved of a candidate, even without the required degree (Li 1997). In other words, such rules were never implemented in practice due to the extremely low number of teachers who could comply

[40]As the *Sishu* lacked the official status of recognized educational institutions under the Republican government (both the Beiyang and the later Nationalist governments), neither educational yearbooks nor national surveys carry any record of them.

Table 10.5 Educational background of primary school teachers, 1946

	Tertiary	Normal	Secondary		Primary	Others	Total
			Senior	Junior			
Number	445	66	3329	9567	6472	11,102	30,981
Percentage	1.44	0.21	10.75	30.88	20.89	35.83	100

Source Zhu (1948, p. 1469)

with them. As presented in Table 10.5, after decades of education expansion, roughly 80% of the primary teachers failed to meet the standard set by the Ministry of Education.

10.6 Conclusion

This chapter looks at the greatest educational movement in Chinese history—the transformation from traditional Confucian teaching to modern mass education approximating a Western model at the dawn of the twentieth century. Although the formation of mass education system is widely believed to be promoted only by a strong state, the historical course of China presents us with an exceptionally interesting scenario. The formation of the modern education model occurred in China when the process of state formation was at its most intensive. As a route to national salvation, a highly foreign-influenced educational reform was initiated by a withering state.

The real implementation of the first mass education system was highly decentralized and the de facto power was in the hands of local governments and local political elites; therefore, the variations in mass education provision across regions and through time were determined by the different preferences of local elites and the political and economic opportunities that they faced in a rapidly changing context. Before 1905, these elites obstructed the introduction of modern education because their legitimacy as political elites came from the Confucian teaching system. Their incentives changed entirely after 1905 when the traditional exam system was officially abolished. They played a positive role in the implementation of the nationwide modernization reforms at

the local to re-institutionalize their status as elites and gain legitimacy and recognition in local communities. Since education was a major field of reform, their efforts concentrated on it, although not exclusively (Chang 1955; Qu 2003).

This chapter also opens interesting questions for future research. Despite being a milestone in Chinese education history, the establishment of the modern education in China has received very few empirical studies directly examining its consequences. Did the rise of mass education that produced modern human capital through training in modern subjects contribute to the development of modern industry and economic growth in China? More empirical studies are required if we are to better understand the importance of the rise of modern education in China after the late nineteenth century.

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