

8. TOWARD MASSIFICATION: HIGHER EDUCATION DEVELOPMENT IN THE PEOPLE'S REPUBLIC OF CHINA SINCE 1949

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It hardly needs stating that what China is and how it will develop is of major importance for all of us. China is not only a culture that has contributed in different ways over a long period to world cultures, but is today one of the most populous and potentially powerful countries in the world (Price, 1997). It is now experiencing rapid, profound socio-economic transformation. Against such a background, mass higher education system is beginning to emerge in China. With enormous recent increase in participation levels, China's higher education is moving fast to become one of the largest systems in the world. Its intake of students, for example, is very close second to that of the United States, in terms of sheer numbers of students. However, its proportion of students enrolled is still far behind OECD countries.

As the integration of China's higher education system into the world community is important and urgent to both China and the world higher education circle (Yang, 2002), it is necessary to have a full understanding of the Chinese system. This chapter aims to provide an overview of the development of Chinese higher education and to put it into the relevant context of massification.

The paradigm shift in focus from elite to mass higher education was originally promoted by Martin Trow (1973) to analyze the explosive growth of higher education first in the United States then in some major European

countries. The discussion was furthered in the early 1980s and the mid-1990s. The idea of an elite-mass paradigm shift has since become the standard account of how higher education systems develop (Scott, 1995). The notion provides a useful perspective to examine China's higher education development. It is in this sense that this chapter employs the concept to explain the transition from elite to mass forms of higher education.

While the rapid higher education expansion after World War II is an often-told and well-documented story, and the term "mass higher education" has been widely used, surprisingly there are still too few studies of the transitional process grounded in detailed examination of particular historical and geographical times and spaces. Comparative studies in less developed countries are especially lacking. This chapter is built on the existing English and Chinese literature on massification of higher education. It delves deeply into the historical traditions, current practices and likely future changes of Chinese higher education to contribute to identifying effective approaches to mass higher education. By so doing, this study also tests and further modifies the existing literature on mass higher education.

The notion of mass higher education has never been more relevant. Many countries have seen a doubling or tripling of post-secondary enrollments in the last few decades, along with increased participation rate for young people. In most middle-income countries today, between 25 and 45 percent of young people enroll in higher education (El-Khawwas, 1998, p. 4). Similar trends have emerged in China. Since the establishment of the People's Republic of China (PRC), its higher education has expanded considerably. In 2000, a total of 3,768,000 first-year students studied in post-secondary education, with 2,206,000 in regular higher education institutions.¹ The number of enrolled students in Chinese regular and adult higher learning institutions (9,399,000) in 2000 was 80 times that (117,000) in 1949 (*China Education Daily*, June 23, 2001, p. 2).

¹China's post-secondary higher education institutions can generally be divided into two sectors: regular and adult higher education. The regular sector is the mainstream including 4-year university (*benke*) and 3-year specialized college (*zhuanke*) programs, leading to a Bachelor's degree and diploma respectively. The adult sector includes 2- and 4-year diploma programs of study. Students in the regular sector are overwhelmingly full time, while students in the adult sector are usually part-time. A substantial proportion of adult higher education is offered by regular higher education institutions. See Du Zhuo-run and Xiong Qing-nian (eds.), (1999) *Zhonghua Renmin Gongheguo Jiaoyu Zhidu*, pp. 108-109, 188-189 for more detailed discussion.

From 1999 to 2001, graduate students increased by 97.7 percent to 194,000, undergraduate students increased by 105 percent to 2,745,000, and students enrolled in 3-year specialized colleges increased by 76.6 percent to 2,775,000. The goal set in the *Action Plan to Vitalize Education in the 21st century (Mianxiang Ershiyi Shiji Jiaoyu Zhenxing Jihua)* issued by the Ministry of Education in 1999 to achieve a gross enrollment ratio of 11 percent was overachieved (Ministry of Education, 1999, p. 4). With the rate of increase, China will be well ahead of the target goal to achieve a gross enrollment ratio of 15 percent by 2010. Those who had received examination-based self-study higher education increased from 147 in 1984 to 488,900 in 2000,² totaling 3,320,000. Numbers of applicants for these examinations in 2000 reached the enormous figure of 13,691,300 (*China Education Daily*, February 29, 2001, p. 1).

Such developments, although impressive, have not brought China mass higher education in the usual sense. The percent of gross enrollment in China in 2000, for example, at about 11 percent, lags much behind the world average of 16.7 percent in 1996. Among economically developed countries, the percentage is as high as 50.5 percent, reaching close to the universalization of higher education (UNESCO, 1998, p. 11).

In an era of the knowledge-based information economy, higher education is seen as the core of nation-building projects in modern societies (Bell, 1976; Gibbons, 1998). China's modernization relies heavily on higher education (Min, 1999), as is clear in the phrase, *kejiao xingguo* (to make China prosperous and powerful through education and science) (Li, 1996, pp. x-xi).

In the following sections, a historical review of China's higher education development is presented first, with particular focus on the achievements

²Examination-based self-study higher education in China is the result of some special socio-historical circumstances. After the open and reform policy was adopted in late 1970s, regular higher education institutions could not supply the huge societal demand for more professionals. The State Council approved an application by the Ministry of Education to experiment with examination-based self-study higher education policy in January 1981. By 1985, all provinces had established their examination-based self-study higher education systems. By passing examinations set by the national government, candidates can obtain corresponding educational qualifications. The examinations cover many specialized areas, and are at diploma and Bachelor's degree levels. All Chinese citizens are eligible to apply. After more than 20 years practice, examination-based self-study higher education has been proved a much-needed countermeasure in meeting the development needs in the rapid expansion of China's higher education. From 1988 to 1997, for example, applicants totaled 53,000,000. Among them 1,730,000 succeeded, covering 425 specialized fields. For more discussions on examination-based self-study higher education in China, see Liu Hai-feng (ed.), (2001) *Gaodeng Jiaoyu Zixue Kaoshi Bijiao Yanjiu*.

since 1949, especially since the adoption of the Open Door policy.³ Then comes a detailed discussion of the current practice, set against an international background. Finally, some tensions within the process of higher education massification are examined critically.

THE CONTEXT: HISTORICAL ROOTS AND CURRENT SYSTEM

By the close of the 18th century, China had perfected one of the world's most durable political systems during 2,000 years of its imperial history and had developed a unique civilization that had deeply influenced the culture of its neighboring countries. China's higher education had evolved according to its own logic and never deviated from its developmental path, despite external influences. Higher education circles confined their dissemination of knowledge to the provincial level and persisted in disregarding knowledge about anything in the rest of the world.

Over such a long historical process, a unique set of scholarly values arose in China. There was no institution in Chinese tradition that could be called a university. Instead, the imperial examination system⁴ and the academies or *shuyuan*⁵ were key elements of ancient Chinese higher learning. As Hayhoe (1996, p. 10) writes:

On the one hand there was the civil service examination system and its cognate institutions — the Hanlin Academy, the college for the sons of the emperor (*guozijian*), the institution of supreme learning (*taixue*), and the whole system of institutions at provisional, prefectural, and county levels that made possible a “ladder of success” through a series of examinations, culminating in the palace examination in the presence of the

³After being closed to international intercourse for decades, China adopted its policy of opening to the outside world at the Third Plenary Session of the Eleventh Central Committee of the Communist Party of China held in December 1978.

⁴The imperial examination system began to take form around 400 C.E. and reached its full institutional development in the Tang dynasty (618–907 C.E.). During the Song (960–1279 C.E.), it crystallized into patterns that were to last right up to 1911. For more information, see Ruth Hayhoe (1996) *China's Universities 1885–1995*, p. 10.

⁵The academies or *shuyuan* took their definitive forms in the Song dynasty, as what had been originally libraries or centers for scholarly discussion developed into academies that provided a structured learning environment separate from, yet interacting with, state institutions associated with the civil service examination system. See also Ruth Hayhoe (1996) *China's Universities 1885–1995*, p. 11 for more information.

emperor himself. On the other hand, there were the *shuyuan*, scholarly societies or academies that were often financially independent through bequests of land, and usually headed by one great scholar, who attracted disciples and colleagues through the virtuosity of his scholarship.

Hayhoe (1996, p. 15) goes on to point out that the 19th century saw the diffusion of the European model of the university throughout much of the world, under conditions of imperialism and colonialism, which might be understood as an integral part of the history of capitalism. As both a crucial gateway to the world and a means to social development, China's higher education could have taken the lead in introducing and assimilating advanced culture, science and technology in order to promote social and economic development. Yet, due to its exclusivity, Chinese higher education continued to train traditional Confucian scholars with little knowledge of the outside world. Although Western higher education models had already demonstrated their strength, China's communication with the West was thus intentionally hindered.

Chinese higher education within the period laid stress solely on the training of scholars with an encyclopedic knowledge based on Confucian values, which in practice served only the aristocracy. The Confucian scholars acquired the cultivation that symbolized their social status. Although occasionally there were some exceptions, the civilian participation in ancient Chinese higher learning was much less than in the equivalent European model.

As China became enmeshed in the West-centered global historical process, officials who had had to deal with Westerners realized that the Chinese needed to acquire the weaponry of the West to ward off the West. In order to better learn Western science and technology, reformers suggested to "give up courtesy to the barbarians" and to invite Western instructors into Chinese institutions (Zheng, 1994, p. 19). Starting from the 1860s, Western style professional schools were founded to train technicians. Among them were many language schools, which trained translators from Western languages into Chinese.

One of these professional schools, *Beiyang gongxue*, was established in 1895 and later became the first modern Chinese university (Chen, 1986). Reforms of traditional higher learning institutions were started thereafter. A number of modern institutions were also established. However, the impact of these institutions was minimal. The traditional examination system did not change its emphasis on Confucianism and continued to

produce a conservative, backward-looking intelligentsia (Teng and Fairbank, 1961).

The "Great Reform" of 1898, however, placed much hope on education. Higher education became a major concern (Shu, 1981). Educational reform was indeed the most revolutionary in its effect on China. Emperor Guangxu decreed that a countrywide hierarchy of schools, topped by universities, be established to teach modern as well as classical subjects; that students be sent abroad for education; and that current affairs and other Western subjects be incorporated into the imperial examinations. By 1905, the traditional examination was finally abolished. Women's, schools—normal and vocational were founded. More students were sent abroad for training, mainly to Japan, the United States and Europe. Education was the area in which the reforms succeeded most (Bastid, 1988, p. 89).

The 1911 revolution which soon followed was thus a product of reformist as well as revolutionary forces. A modern educational system was ostensibly established in such a context. The new republican government decreed a major reorganization to create an education system in 1912 more in tune with prevailing world trends. A foundation was laid to build a new higher education system. The classics were ordered to be eliminated from the curriculum. The new educational law stipulated length of terms for universities, classified branches of study as humanities, science, law, business, medicine, agriculture and engineering, and required that universities establish graduate schools, offer preparatory courses, and organize appraisal meetings.

In 1912, there was 1 university, 10 preparatory schools, 94 professional training colleges, 12 normal colleges, and 5 "others" (Pan and Liu, 1993, p. 803). Within this period, foreign missionaries played a significant role in higher education. By 1917, 80 percent of the student population was accommodated by missionary universities. By the 1922–23 academic year, there were 35 university-level institutions of higher education, 68 provincial training colleges, 8 normal colleges, and 14 "others" (Zhou, 1934, p. 225).

However, universities developed in a rather lopsided fashion nationwide. For instance, there were 638 students of law, 376 students of engineering, but only 74 students of science. In addition, 11 industrial colleges of industry, agriculture, medicine, and business were also established with a population of 4,000 strong students, while law schools numbered 32 with at least 8,000 students (Gao, 1992, p. 227). Students still strongly regarded becoming an official as the only purpose for getting an education.

The lack of central government from 1911 to 1927 provided Chinese higher education with the possibility of vigorous experimentation. The period, as Hayhoe argues (1996, p. 43), saw the first real effort to establish a “university” in the sense of the defining values of autonomy and academic freedom. Within the period, a tremendous range of new higher education institutions also developed and flourished. Different strands of China’s own evolving traditions linked up with various foreign influences, with America replacing Japan as the most favored source of influence. Chinese scholars who returned from Western countries and Japan played a key role in the development of higher education. Educational thought gradually matured, with eclectic foreign influences, particularly from America and Europe.

The Japanese invasion in 1937 inflicted heavy losses on China’s higher education. By 1936, China had had 108 higher education institutions, of which 91 were damaged significantly from July 1937 to August 1938. Students decreased to 25.6 percent from 41,922 in 1936 to 31,188 during 1937. With constant bombing by Japanese fighters, many institutions could not maintain order. They were forced to move to remote mountainous districts, and sustained great losses of finance, personnel and library collections.

Nevertheless, in the regions that were not occupied by the Japanese troops, higher education even grew during these years. By the end of the Anti-Japanese War (1937–45), there were 141 higher institutions, with an enrollment of 83,498 students. The development during this period was much imbalanced among disciplines, with the biggest growth in education and commerce. The numbers of students in natural and social sciences dropped dramatically.

From 1912 to 1949, the university continued to go through a process of adaptation and indigenization that might be compared to the development of American universities in the 19th century. During this period, the Chinese university developed into a mature institution, which achieved a balance between its Chinese identity and its ability to link up to a world community of universities.

The Chinese Communist Party (CCP) came into power and founded the PRC in October 1949. Western policies to isolate the newborn communist China led to the leaning to the Soviet Union. The first national higher education conference held in June 1950 demanded attention be paid to the socialist Soviet model, the dominant slogan in China until the mid-1950s was “learn from the Soviet Union.” Mao Ze-dong announced in the

summer of 1949 that the CCP must “lean to one side” (Mao, 1991, pp. 472–473). Russians replaced departing Americans and Europeans, some 700 Soviet “experts” serving in Chinese higher learning institutions in the early 1950s. From 1952, the Chinese higher education system simulated Soviet administration, teaching methods, textbooks, and even classroom design. The experience of other countries, especially those of the West, was rejected.

Based on Russian experience and advice, the First Five-Year Plan (1953–1957) focused on the development of heavy industry. Plans to reform institutions of higher education so as to emphasize technical education were finalized in 1951 (*People’s Daily*, September 24, 1952, p. 2). To ensure that the restructured system performed the function intended, it was reinforced within unified sets of plans for student enrollment, job assignment, and curriculum content.

The Eighth National CCP Congress in 1956 again emphasized the role of higher education in national reconstruction. It required universities and colleges to absorb the latest technology developments in the world and send teachers and students abroad for study. This conference, however, was followed by an assessment of educational achievement since the founding of the PRC, which concluded that (in the context of the Cold War) higher education should be geared to the tit-for-tat struggle between classes and lines (socialism and capitalism). Bourgeois educational views were bitterly criticized (Schram, 1974). From the Great Leap Forward (1958–1966) to the end of the 1970s, expertise was not given a wide edge over political understanding.

Whichever way one looks at the Great Proletarian Cultural Revolution (1966–76), with hindsight it must be seen as a terribly costly failure, perhaps partly because of its passionate rejection of foreign influence. Higher education was devastated along with the fortunes of a generation of teachers and students. Institutional administration was paralyzed and classes suspended. Maoists eliminated age limits and entrance examinations for universities and colleges, reduced the number of school years needed for graduation, and eliminated the examination-based grading system. As time passed, it became increasingly obvious that this egalitarian approach to education would not produce the high-quality technicians and scientists China needed for its modernization program. The closing down of universities for some years in that period also left a gap in the educated class that is still proving to be a handicap in China’s efforts to modernize.

When Deng Xiao-ping and the “pragmatist” faction reversed Maoist policies in late 1976 and set China on a more rational, economic-oriented path to modernization, one of the first tasks undertaken was restoration of the educational system (Reed, 1988). Although Deng’s reform agenda was officially inaugurated at the Third Plenum of the Eleventh Central Committee held in December 1978, changes in the education sector had preceded it. By that time, almost all the decisions necessary to recreate the regular education system in its pre-1966 state had already been announced, and implementation was well under way (Pepper, 1990). Entrance examinations to colleges and universities were re-introduced, and professional standards and expertise were made respectable again. These post-Maoist changes in educational policy saw the re-emergence of the old “regular” system with its residues of foreign models (Hayhoe, 1984).

The Chinese higher education system has long been highly centralized, with education provided by the central and local governments, respectively, under their direct administration. It has been viewed as a disadvantage of the system that the state undertook too much responsibility and the schools lacked flexibility and autonomy to provide education according to societal needs. The central departments and local governments provided education separately. The structure of education was segmented with overlapped disciplines and very low efficiency of institutional operation. Therefore, structural reform has been the core of China’s higher education reforms in recent decades.

At the same time, in line with international practice, significant progress in implementing the reform agenda is also seen in other aspects of the higher education sector. The costs of higher education are increasingly shared with students and families via tuition and fees. Means-tested grants and student loans are now available, and are on the Chinese higher education policy agenda. Private sector institutions continue to grow where they are not prohibited by the law. Cost-effective, market-responsive learning is widely occurring in most institutions. The financing of universities is taking into account measurable output indicators, and the government is devolving expenditure authority to the universities, and entrepreneurship is growing fast within every university at the institutional, departmental, and individual faculty levels.

The reform and development of higher education in the last two decades has resulted in significant achievements. A higher education system which encompasses basically all branches of learning, combines both degree and non-degree education and integrates diploma, undergraduate

and graduate education has taken shape. In 1998, there were, altogether, 1,984 higher education institutions, among which 1,022 and 962 were regular and adult higher education institutions, with a total enrollment of 3,408,700. The total number of graduate students was 198,885.

Chinese private higher education (the *minban* system) is also developing rapidly. The Chinese expression *minban* literally means “popularly run” or “run by collectives and individuals”. Essentially, *minban* institutions are those run by non-state sectors, including privately and collectively owned institutions.

Private higher education has a long history in China dating back to ancient dynasties. It disappeared in 1952 as noted above, and has been resurrected as an offshoot of the country’s new economic diversification. China’s first *minban* higher institution, Zhonghua Shehui University, was established in March 1982. Since then *minban* institutions have been struggling to gain legitimate status within the Chinese system, something that they have attained only gradually.

Minban institutions have further developed especially since 1997 when the State Council issued its *Regulations of Education Run by Social Forces (Shehui Liliang Banxue Tiaoli)*, which further legitimized their role. There were 1,095 *minban* institutions nationwide in 1995, with a student intake of 1,190,000. The number of institutions grew steadily to 1,230 in 1996, 1,252 in 1997, and 1,277 in 1999 (Mok, 2000).

Let us have a glance at the current Chinese higher education system. Chinese higher education is provided by institutions of various types including general universities (natural and social sciences and humanities), technical universities, specialized institutions (medicine, agriculture, foreign languages, etc.) and teacher-training colleges. Graduate schools, attached to 4-year colleges, universities and national scientific research institutions with the authorization of the Ministry of Education, are responsible for the management and organization of graduate education. The State Council and the Ministry of Education are responsible for policy-making, development planning, reforms and the direction of higher education at the national level.

The Chinese system comprises 4-year undergraduate programs in universities or colleges, which lead to a Bachelor’s degree, while study at medical colleges and some polytechnic institutes requires 2 years. Students can obtain a Master’s degree after 2–3 years of successful study and completion of a dissertation. Students are required to study courses in the first half of the study term. They can only enter the dissertation preparation

stage if they have completed all required courses and obtained the required minimum of credits. Doctoral degree requirements can be completed in a minimum of 3 years. A dissertation must be presented proving that the candidate possesses the ability to undertake independent research and has made a significant contribution to the field.

Until 1955 no graduate study facilities were available, and students mostly went to the former Soviet Union for graduate studies. In 1955 the qualification of Associate Doctor was established, but few were awarded. Graduate study was not re-instituted until 1978 after the Cultural Revolution. Since 1982, the Chinese government has instituted a number of educational development programs to raise academic standards and has introduced a wide range of research courses in universities.

One important part of the present Chinese higher education is the non-formal system. Non-formal studies are offered by radio and television universities, whose courses are accredited by the Ministry of Education. The Central Broadcasting and Television University (CBTVU) in Beijing, for example, offers numerous 3-year courses, including mathematics, physics, engineering and electronics, management and agriculture, and Chinese language. Graduates are granted a diploma. There are about 50 provincial television-based universities nationwide working closely with the CBTVU.

Spare-time colleges have been established by factories and trade unions to offer 4-year courses in various fields and/or short advanced courses. These institutions are regarded as universities. There are some other forms of non-formal higher education. The People's University of China, for instance, offers special classes to enable students to make up any deficiency in their secondary education; these normally continue for 2-4 years. There are also evening schools and advanced training programs for adults attached to regular universities and colleges. Diplomas or certificates are awarded on the basis of completion of required courses and passing the examinations.

The overall structure of Chinese higher education has changed significantly, particularly within the past 50 years from the single emphasis on undergraduate education to a more reasonable distribution at various levels. In 1950 the ratio between two/three-year training specialized colleges, undergraduate and graduate programs was 0.1 : 1 : 0.01. It became 0.83 : 1 : 0.08 in 1978, and 1.23 : 1 : 0.07 in 1999 (Ministry of Education, 1979, p. 47). Taking examination-based self-study higher education students into account, the ratio then was 1.65 : 1 : 0.066. This means students

enrolled in two/three-year specialized college programs have occupied 62 percent of the total, forming a pagoda-shaped structure for the system of higher education, with many more at the bottom than at the top.

THE TRAJECTORY OF HIGHER EDUCATION EXPANSION IN THE PRC

THE INITIAL STAGE OF THE PRC (1949-57)

During the initial stage of the PRC, full-scale reconstruction was under way. Based on socialist public ownership and the development goals of a planned economy, the Chinese communist government took over both public and private institutions of higher learning from the previous Nationalist government, as well as the institutes run by foreign missionaries. Meanwhile, the then Soviet style was modeled as a basis for China's nationwide higher education reorganization. Chinese higher education grew rapidly thereafter, especially from 1955 to 1957.

First, the communist government took over all 205 higher learning institutions left over by the governments at various levels under the Nationalist Party (124), private agencies (61) and foreign missionaries (20) (Ministry of Education 1979, p. 42). The new government saw the remolding of foreign missionary institutions as an integral part of its political campaign to resist imperialistic cultural invasion. It was reiterated clearly by Ma Xu-lun, the then Minister for Education, that foreigners were not allowed to run schools in China. In this regard, it is interesting to see how the Chinese government later welcomed foreign participation in providing education after a few decades of administration, as shown later in this chapter. While the change of political power was violent, regular operation of colleges and universities was maintained with remarkable little disruption.

In consideration of the fact that foreign missionaries had substantially reduced providing funds, the then Government Administration Council decided to transfer all missionary institutions to public ownership on December 29, 1950. By 1950, the communist government had taken over 20 foreign missionary institutions, of which 17 were American, with 14,536 students, 3,491 teaching and administrative staff, and 1943 security guards. Meanwhile, the Ministry of Education issued *Provisional Regulations of Private Higher Institutions Administration (Sili Gaodeng Xuexiao Zaxing Tiaoli)* and began

to subsidize private post-secondary institutions (Yu, 1994, pp. 15–16). While these changes were evidently due to political considerations, higher learning institutions became much more accessible to some of the Chinese population with middle, lower middle and working class origins.

Second, the Chinese government realized that there was a huge gap between the industrialization demand for highly skilled and educated workers and the actual supply generated by those left over institutions from the previous government which were the small-scale, single-leveled with imbalanced foci on arts, humanities and social science.⁶ A campaign of remolding the “old” education began. The restructuring of higher education institutions was a major event aiming at the needs of national construction. As the Minister of Education pointed out, the fragmented political and economic situation was reflected in higher education, which was in an extremely anarchic state, with each government department operating in its own way (*People’s Daily*, June 14, 1950, p. 1). Thus, a nationally united and centralized leadership needed to be gradually established.

Higher education must be geared to the need of national construction. The existing system should be strengthened and adjusted adequately and gradually, or new departments need to be created. Such work starts from North and East China regions. (He, 1998, pp. 92–93)

With a view to meeting the needs of economic construction, steps were taken gradually to strengthen and readjust the departments and colleges within higher education institutions. The departments of the engineering colleges were the first to be readjusted, and new departments added. As early as the end of 1949, the central government and various administrative regions searched into ways of achieving the proposed adjustment, and conducted some experiments. In November 1951 a national conference of the presidents of engineering colleges discussed the first draft of a national higher education adjustment. According to the conference, the major problems of the national distribution of engineering colleges were: an imbalance in terms of geographical distribution; a dispersion of teachers and facilities which led to uneconomical practices; impractical programs that failed to train specialized personnel; and

⁶ Immediately before the CCP came into power, there were 49 comprehensive, 28 engineering, 18 agricultural, 22 medical, 12 teacher training, 11 foreign languages, 11 finance and commerce, 7 law and politics, 2 physical education, 18 art higher learning institutions and 27 others. For more detailed information, see Ministry of Education (1979) *Sanshinian Quanguo Jiaoyu Tongji Ziliao, 1949–1978*, p. 42.

a shortage of students. The conference made a plan that centered on the restructuring of engineering colleges in North, East and the Central South China.

The Ministry of Education issued a draft of a report on national higher education adjustment in May 1952. It required institutions to keep the existing needs of national construction, and their own strengths in mind, and to do their work in order of importance and urgency. The main task of 1952 was to reorganize institutions in Beijing, Shanghai, Hangzhou, Nanjing, Wuhan, Changsha, Guangzhou as well as in some big cities in Anhui and Shandong provinces. The institutions included comprehensive universities, specialized institutes and two/three-year specialized colleges. The content was adjusted and consolidated according to the decrees issued by the central government.

In each administrative region there was to be at least one comprehensive university to train scientific research personnel and teachers. Engineering institutes were the main concern at this time. The principle was to reduce the number of polytechnic institutes, and increase the number of specialized engineering institutes. Agricultural institutions were required to be established, with only one to three in each administrative region. There were to be one to three teachers' colleges in each administrative region to train senior secondary school teachers, while the training of junior secondary school teachers was left to the provincial governments (*Zhongguo Jiaoyu Nianjian* Editorial Committee, 1984, p. 233). It was clear that the main task of this adjustment was to develop specialized colleges, especially engineering institutes, with the adjustment and consolidation of comprehensive universities as a supplement.

In May 1953, the Government Administration Council decided to continue the restructuring of higher education, building on the work of 1952. This time, the focus was on the Central South region, together with the adjustment in the North, East and the Northeast China areas, and some in the Northwest and Southwest regions. The main targets were on the one hand, to reform the old universities which were thought to have disorderly specialties, and which had not yet been re-organized. On the other hand, institutions of technology, and some teacher-training colleges were to be strengthened and increased. Institutions of finance and administration, politics and law were merged and consolidated. By 1953, a wholesale reorganization of Chinese higher education had been accomplished, providing the basis for further development of the next 50 years.

After the adjustment, there was a total of 182 higher learning institutions, including 14 comprehensive universities, 38 engineering institutes, 31 teachers' colleges, 29 agricultural and forestry institutions, 29 medical and pharmacy institutions, 6 institutions of finance and economics, 4 institutions of politics and law, 8 foreign language institutes, 15 institutions of art, 4 physical education institutions, 3 institutions for minority groups, and 1 meteorology institution (Yu, 1994, pp. 39–40).

The reorganization in the early 1950s, together with the take-over of public institutions from the previous government and the transference of the foreign missionary universities into public ownership, combined to lead to a rapid expansion of China's higher education during the initial years of the PRC. Enrolled students increased 69 percent from 1949 to 1952. During the First Five-Year Plan period, the annual increase rate of student intake in higher education reached 18.2 percent (*Zhongguo Jiaoyu Nianjian* Editorial Committee, 1984, p. 963).

THE GREAT LEAP FORWARD AND THE "HARD LANDING" AFTERWARD (1957–66)

The good times in the early 1950s did not last long. China's higher education circle soon turned dizzy with success. Ma, still the Minister for Education, summarized the situation in his speech entitled "New China's Higher Education in the Past Five Years" in October 1954:

Due to the rapid development of our national construction, neither the quantity nor the quality of higher education can satisfy our societal demands. . . . In consideration of the limited numbers of secondary graduates, higher education institutions have difficulties in recruiting sufficient number of students. In order to solve such a problem, our principle is to concentrate our strength on key projects. To achieve this, we must create conditions proactively, and at the same time, facilitate ourselves with revolutionary enthusiasm and methods to bring our latent potentialities fully to fulfill our task to train cadres for our country. (He, 1998, p. 391)

As a matter of fact, the number of the students enrolled for higher education in 1954 was already 135 percent of secondary school graduates. This was seen as entirely appropriate within the atmosphere during the Great Leap Forward, which required China to catch up with the United Kingdom and the United States within 15 years. The Central Committee of the CCP and the State Council released *Instructions in Education Work*

(*Guanyu Jiaoyu Gongzuo de Zhishi*) on September 19, 1958, which pointed out:

We should devote our major efforts to developing secondary and higher education to achieve the goal that all our young people and adults can receive higher education when they meet certain requirements on a voluntary basis. We will universalize higher education within 15 years, and then spend another 15 years on its improvement. (National Education Research Institute, 1984, p. 232)

The plan to universalize higher education within 15 years drove China's higher education into its own great leap forward. Higher education institutions increased from 229 in 1957 to 1289 in 1960. New enrollments grew from 105,000 to 323,000. The total number of students in higher education increased rapidly from 440,000 to 960,000 (Yu, 1994, p. 63). In fact, the year 1958 witnessed the birth of two institutions every three days. For several years consecutively, higher education recruited more students than secondary school graduates, as shown in Table 8.1.

By early 1961, the Chinese government realized the necessity to put a brake on this rapid expansion. On June 6, 1961, when commenting on the adjustment of higher education institutions and upper-level specialized colleges in Beijing, the Ministry of Education pointed out:

The number of higher education institutions in Beijing increased from 31 in 1957 to 90 at present. Students increased accordingly from 77,000 to 132,000. This growth is too fast, and needs to be checked. The overall scale should be in more control. (He, 1998, p. 1033)

Table 8.1: Higher Education Institutions and Secondary School Graduates, 1954-1960 (thousand)

Year	General Secondary School Graduates (GSSG)	Higher Education Institutions Enrolments (HEIE)	Percentages of HEIE on GSSG (%)
1954	68	92	135
1955	99	98	99
1956	154	185	120
1957	187	106	57
1958	197	266	135
1959	299	274	92
1960	288	323	112

Source: Ministry of Education (1979), pp. 14-17.

The Ministry of Education then proposed the Adjustment, Consolidation, Enrichment, and Improvement (ACEI) policy, and required higher education institutions to take measures to control their scale, reduce student numbers, merge with each other, and even move out of Beijing to other regions if needed. By August 10, the Ministry of Education officially issued a national adjustment policy, and set a national enrollment limit between 160,000 and 180,000.

In order to ensure teaching and research quality, 882 (68.4 percent of the total) institutions were closed from 1961 to 1963 (Yu, 1994, p. 70). Teachers were dispatched. Students who originally came from factories and rural areas were sent to countryside. Such a “hard landing,” although compelled by the circumstances, caused huge waste of human, financial and material resources (Xie, 2001, p. 143). Many students had to discontinue their studies. The whole higher education system was greatly undermined.

The emergence of evening universities, correspondence learning, radio, and television universities during this period deserves our attention. Their establishment was regarded as a compliment to the regular system. Since China’s first television university was established in Beijing in March 1960, many provinces built up their own radio and television universities (Yu, 1994, p. 61). From 1957 to 1965, students enrolled in such modes of higher education increased from 70,000 to 790,000 in 1960. These forms of educational provision were not much affected by the readjustment in the early 1960s. By 1965, at least 400,000 students were still enrolled in such modes (Xie, 2001, p. 145).

It took China a few years to bring order out of the chaos caused by the impact of the Great Leap Forward on higher education. By the 1964–65 academic year, the national situation had largely returned to normal. China’s economy had also overridden great difficulties: the GDP began to climb again with increase rates of 10.2, 18.3, and 17 percent, respectively in 1963, 1964, and 1965. This was the time when people began to forecast another fast growth both in the economy and in higher education. What followed was the Cultural Revolution, a disastrous man-made calamity, whose impact still lingers on today.

HIGHER EDUCATION DURING THE CULTURAL REVOLUTION (1966–76)

The official verdict of the Cultural Revolution by the CCP Central Committee after it was over (1982, p. 811) was that it was a period of

“civil strife.” During the 10 years in which it ran its course, China’s economy and higher education suffered unprecedented losses. In 1967 and 1968, for instance, China’s GDP fell 5.7 and 4.1 percent consecutively. Over those 10 years, misery and suffering characterized the experience of those in higher education. By 1971, there were only 328 higher learning institutions. Students numbered 48,000 in 1970, 59 percent less than the intake of 1949, and almost equal to that (44,000) of 1939, as shown in the Figure 8.1. This backlash formed a sharp contrast to the Great Leap Forward period in the early 1960s.

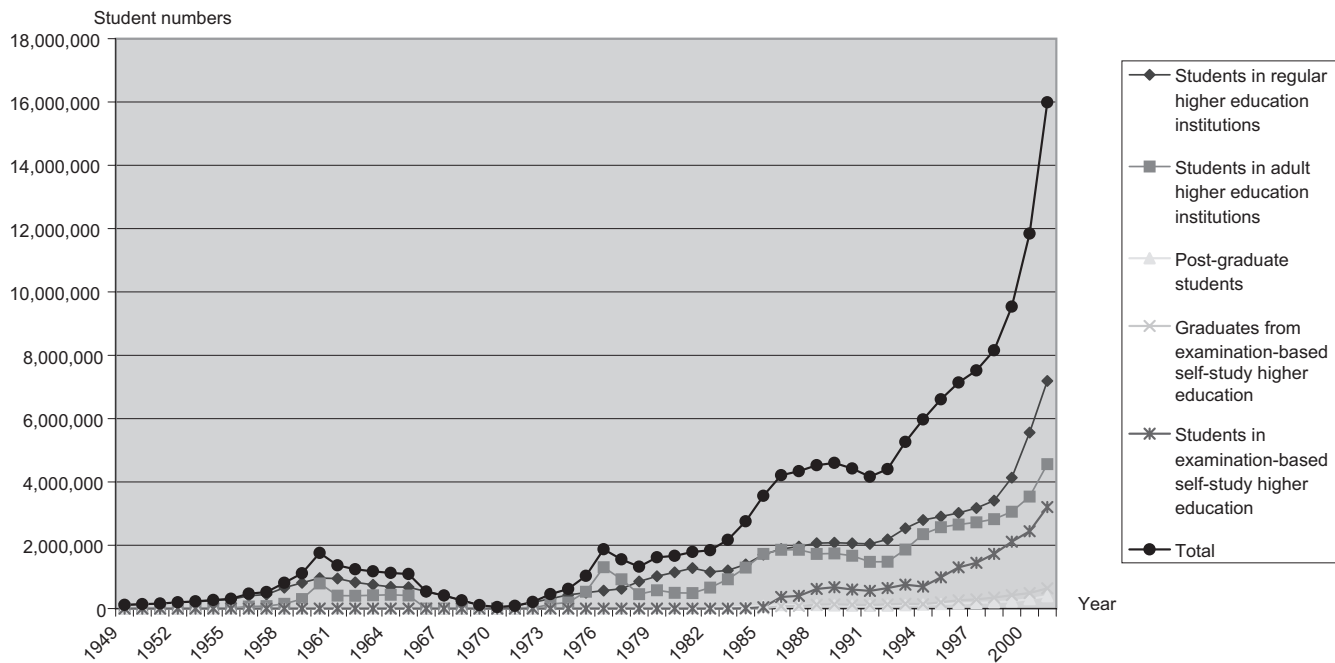
Beginning from March 1970, the resident Mao Ze-dong Thought propaganda teams formed by workers and People’s Liberation Army soldiers and the revolutionary committees at Peking and Tsinghua Universities submitted a joint request to the Central Committee of the CCP for student recruitment. Their report pointed out:

According to Chairman Mao’s teaching, university students should be selected from workers and peasants with practical experience, as illustrated by the case of Shanghai Machine Tool Plant. They study at universities for several years, and then go back to practice again. Our two universities plan to recruit 4,100 students from the first half of this year. Their length of study will be 2–3 years. In order to be admitted, they must be workers, peasants or soldiers, have completed their junior secondary education, and be under 20 years of age. (National Education Research Institute, 1984, pp. 433–434)

The request was approved on June 27. The central government asked universities nationwide to follow suit with consideration of their local circumstances. Chinese higher education institutions, after four years suspension, recruited their first batch of 41,870 “workers, peasants and soldiers students” (WPSS) in 1970 (Xie, 2001, p. 148). The recruitment of WPSS continued to 1976 when students totaled 560,000, equivalent to the intake in 1957.

During the early 1970s, spare-time higher education institutions grew fast from 127 in 1972 to 13,436 in 1976 with a student intake of 1,300,000. Though the quality of students and teaching in both regular and spare-time higher education institutions was extremely questionable (Shanghai Higher Education Research Institute, 1989, p. 23), this was part of the recent history of Chinese higher education. Considering this, WPSS are treated the same as other university students in the above figure in order to delineate an overall picture of China’s higher education development in the past half century.

Figure 8.1: Students in China's Higher Education, 1949-2001



REGULATION IN THE NAME OF REFORM SINCE THE LATE 1970S

Deng Xiao-ping started his regulation of education immediately after the Cultural Revolution. In August 1977, Deng said at a national symposium of science and education that “this year we should make a resolution to recruit university students directly from senior secondary graduates. . . . Such direct recruitment in my view is a good way to turn out talents and produce results” (National Education Research Institute, 1984, p. 499).

On October 12, 1977, the State Council and the Ministry of Education issued two policy documents respectively concerning the recruitment of undergraduate and graduate students. In the winter of 1977, some 5,700,000 candidates sat for higher education entrance examinations, with 273,000 being admitted. Candidates increased to 6,100,000 in 1978, with 402,000 actually enrolled, which was another peak year in history (National Education Research Institute, 1984, p. 519).

At the initial stage of the open and reform practice in the late 1970s, Deng Xiao-ping made a series of speeches emphasizing the crucial roles of science, education and intellectuals in China’s modernization (see, e.g., Deng, 1994, pp. 85–90, p. 108). His views were implemented into national policies. In December 1978, economic construction replaced class struggle to be identified as the central work by the CCP. From 1978 to 1999, China’s GDP increased five times with an average annual rate of 9.58 percent.

Over the period, China’s higher education grew accordingly. Students in regular and adult higher learning institutions and in examination-based self-study higher education increased six times from 1,320,000 to 9,530,000, with an average annual rate of 9.9 percent. Higher education enrollment ratios increased from 1.56 percent in 1978 to 11.2 percent in 1999. By 1999, the ratio of students in higher education to those in secondary schools was 1 : 7. This has been termed as the “pre-mass” stage between the extreme elite and mass higher education (Knowles, 1978, pp. 2770–2773).

In the late 1970s, the Chinese government realized the widening gap between the increasing societal demand for higher education and its limited financial capacity to provide sufficient funding for such education. One way to solve this problem was to further build up radio and television universities. For this purpose specifically, China bought a communication satellite in 1978. By 1997, China had established a national television higher education system, with the CBTUV at the top and 44 institutions at provincial level, 831 branches at prefectural level, and 1,699 branches at county level.

Another means to overcome the difficulty was to rely on examination-based self-study higher education. The system came into being on the initiative of the State Council and the Ministry of Education in late 1980 and early 1981, and became popular nationwide between 1983 and 1987, and has grown further since 1988 when the central government issued specific regulations. Graduates from examination-based self-study higher education increased from 1,478 in 1984 to 422,000 in 1999. Considering the fact that it takes candidates 5 years on average to finish their studies, one graduate from examination-based self-study higher education is equivalent to five enrolled students in regular higher education, and the contribution of examination-based self-study higher education to the national total number of enrollments was 211,000, occupying 22 percent (see Figure 8.1).

Third, despite the annual increment of government investment in the early 1980s, resources for higher education were far from sufficient. In order to supplement inadequate public sector and state finance, *minban* higher education arose as the times required.

Within the Ninth Five-Year Plan (1996–2000), China's intake of students in higher education continued to grow substantially (Table 8.2). There was a considerable increase of university student numbers per 100,000 population. The increased rates of higher education enrollment in 1999 and 2000 were substantially higher than the average 8.5 percent over

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Table 8.2: Higher Education Growth in the Ninth Five-Year Plan (1996–2000) with Comparison to 1990 and 1995

Year	1990	1995	1996	1997	1998	1999	2000
Higher education gross enrollment ratio	3.4	7.2	8.3	9.1	9.8	10.5	11
Post-graduate students (thousand)	93	145.4	162.3	176.4	198.9	233.5	301.2
Adult education students (thousand)	1666.4	2570.1	2655.7	2724.2	2822.2	3054.9	3536.4
Numbers of higher education student in every 100 thousand population	326	457	470	482	504	594	723
<i>Source: National Center for Education Development Research (2001), p. 11.</i>							

the previous 24 years since China adopted its Open Door policy. In 2000, students totaled 9,399,000 in China's 1,041 regular and 772 adult higher education institutions, 2.4 times more than the total number in 1990. The average annual increase rate within the period of 1990–2000 reached 9 percent. Other aspects of higher education also developed considerably within the Ninth Five-Year Plan period (Table 8.3). Graduate students in 2000, for example, totaled 301,000, 3.2 times more than that in 1990 (National Center for Education Development Research, 2001, pp. 10–11).

Growth continued in 2001. More than 1,500 Bachelor and Diploma programs were newly launched (Table 8.4). In order to further drive economic development, the Chinese central government lifted the longstanding restrictions on marital status (required to be single) and age (below 25 years of age) of student examinees. In 2001, 4.5 million candidates

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Table 8.3: Development of Full-Time Higher Education during the Ninth Five-Year Plan (1996–2000) in China with Comparison to 1990 and 1995

Year	1990	1995	1996	1997	1998	1999	2000
Numbers of higher education institutions	1,075	1,054	1,032	1,020	1,022	1,071	1,041
Average student numbers of each higher education institution	1,919	2,758	2,927	3,112	3,335	3,815	5,289
Staff number (thousand)	1,004.5	1,040.6	1,035.8	1,031.5	1,029.6	1,065.1	1,112.8
Teacher-student ratio at regular higher education institutions	—	9.83	10.36	10.87	11.62	13.37	16.3

Note: "—" Means statistics unavailable.

Source: National Center for Education Development Research (2001), p. 12.

Table 8.4: Enrolled Students in Regular Higher Education 1998–2001 (thousand)

Year	1998	1999	2000	2001
Total student intake	6430	7422	9399	21244
Graduate students	199	234	301	393
Undergraduate students	2576	3208	4118	5354
Diploma students	3655	3980	4980	6397

Table 8.5: Growth of Student Enrollments in Regular Higher Education Institutions 1998–2001 (thousand)

Year	1998	1999	2000	2001
Total enrollment	2,085	2,755	3,768	4,642
Senior secondary school graduates	5,210	5,467	6,021	7,091
Ratio of students in higher institutions to those in senior secondary schools	40%	50%	62.6%	65.5%

sat for university entrance, and 16,265 of them were over 25 (Table 8.5). Among these many were married. With such an increase in participation levels, the national government has recently readjusted its state planning and is determined to increase gross higher education enrollment ratio to 15 percent by 2005.

To summarize, both gains and losses have been outstanding in the past half a century trajectory of Chinese higher education development. While the Great Leap Forward warns that higher education cannot be divorced from the bearing capacity of the economy, the Cultural Revolution upheaval showed stability as a prerequisite for mass higher education. The relatively smooth growth since the late 1970s has been based on a variety of factors.

First, with only limited financial resources, the central government alone can never satisfy pressing societal demands for education. Sources of funding for China's higher education have been increasingly diversified. The state's role as the sole provider or a reliable guarantor of educational services has been transformed to a regular or service purchaser in order to alleviate the pressure on the government's finances and to strengthen the institutions' capacity for self-reliance (Mok, 2001). This move is in a direction that has been evident in many developed and developing countries (Rhodes, 1997).

Individuals and social groups are encouraged to participate in running education. In 1999, for example, *minban* post-secondary institutions accommodated 123,000 students (*China Education Daily*, October 18, 2000, pp. 1–2). Even public institution funding sources have been greatly diversified, relying heavily on the “multiple-channel” approach, which includes government funding, education tax revenue, tuition and fees, university-run enterprise deductions, donations and foundations. In 1995, for example, the funds for public higher education institutions includes government investment (70.12 percent), education tax revenue (0.52 percent), contribution by

university-run business (9.82 percent), education running expenditure from individuals and social groups (0.23 percent), donations (1.02 percent), tuition and fees (13.16 percent), and others (5.07 percent) (Shanghai Institute of Intellectual Development, 1997, pp. 92–93).

Second, since China adopted the Open Door policy, the scale and expansion of its higher education sector has matched the growth of its national economy with a high correlation between their indexes. The correlation coefficient between higher education enrollments and China's GDP was 0.95 during the period of 1978–99 (Xie, 2001, p. 153).

Third, in order to provide sufficient higher education services to satisfy heightened social aspirations and parental expectations, China has gradually restructured its higher education system with a variety of higher education provision modes, including forms of full-time, part-time, radio and television, and examination-based self-study higher education. By 1999, China had approached closely to what has been defined as the threshold of mass higher education (Trow, 1973). Accordingly, the functions of the university have changed substantially, bringing formal and non-formal higher education even closer. This resembles the development of mass higher education in modern industrial societies after World War II, which exhibited a rapid growth of enrollments, both in absolute numbers and in the proportion of the traditional age cohorts (Gibbons, 1998).

DYNAMICS FOR MASS HIGHER EDUCATION

The development of mass higher education is not an isolated, autonomous phenomenon. The larger changes in the nature of society and in the structure of the economy and the shifts in intellectual culture and in science and technology are integral parts of the story of mass higher education (Scott, 1995). This explains why mass higher education and the path to it are the major questions at issue in Chinese academic circles. Before we examine any of China's specific strategies, let us first look at the current societal calls for mass higher education.

A FAST-GROWING ECONOMY

The growth of the world economy in 2001 featured significant slowdowns, with various developed countries plunging into economic

recessions or economic downturns simultaneously. Against this context, China was able to maintain a 7.3 percent growth. A simple direct comparison of economic growth of all countries shows that China exceeded all the others. The most prominent feature of China's economic growth over the past few years is that the growth rate has been maintained at a 7–8 percent level for four successive years. From 1989 to 1999, calculated according to the current price, the growth rate of China's GDP increased from 4.1 percent in 1989 (close to low-ebb years) to 14.2 percent in 1992 (high-growth years), and then decreased to 7.1 percent in 1999, 8 percent in 2000, and 7.3 percent in 2001. Over the past two decades, China has succeeded in obtaining an average annual growth of about 10 percent, while the average annual inflation rate was kept under 3 percent.

China's GDP growth is predicted to remain steady at about 7 percent in 2002 (Liu, Wang and Cheng, 2002, p. 9). Such rapid economic growth has amazed the whole world. Most recently, whether China can maintain such growth in the years to come has been the subject of a lively debate inside and outside China. Judged by the overall situation of economic growth, China experts tend to predict that China's economy will keep on growing (see, e.g., Lardy, 2002), especially with China's reformist leaders moving along with the global economy in a liberal direction.

Chinese household income has increased substantially. Measured by purchasing power parity, the present per capita GDP is between US\$1500 to US\$2000. By 1998, China's private saving was 40,000 billion *yuan* (US\$1 \approx 8 *yuan*), of which most was used for education. Once Chinese households have achieved relatively comfortable standards of living, expansion of the higher education sector can be easily justified. This will reduce the immense pressure caused by young people's demand for further education on the one hand, and provides the society with educated manpower, especially scientists and engineers on the other hand.

Within the past 20 years, Chinese residents' income has more than doubled. Starting from the mid-1980s to the 1990s, however, the rural-urban income gap began to widen. Income disparities among regions were also on the rise, as economic growth in coastal China was more rapid than inland areas. While the relative gap between the per capita GDP in different regions is being narrowed, the absolute gap continues to widen.

Income disparities within both rural and urban China have become less equitable. Within regions, substantial disparities exist between urban and rural areas. In Guangdong, a province that has been well documented

as being one step ahead of the rest of China (Vogel, 1989), the per capita GDP in Zhuhai (the wealthiest city) was 16.4 times more than that of Heyuan (the poorest county) in the mid-1990s. According to the State Statistical Bureau, while 33.1 percent contribution to GDP was made by end consumption, rural residents contributed 15.8 percent only, which decreased 9 percent compared to the 24.8 percent contribution in 1998. Moreover, 63.91 percent of Chinese population lives in rural areas (Population Census Office, 2001).

In a word, China's economic growth has provided its higher education sector with both a huge demand and a solid basis for expansion. Within the process of higher education massification, however, special attention needs to be paid to income disparities between urban and rural areas and between different social groups. The process will be greatly affected if the 63.91 percent Chinese rural population does not raise their consumption level.

INTERNATIONAL COMPETITIVENESS IN SCIENCE AND TECHNOLOGY

China's recent accession to the World Trade Organization (WTO) has been hailed as the "biggest coming-out party in the history of capitalism". WTO supporters predict that its membership will eventually contribute to higher standards of living for its citizens and increased growth for its economy. At the same time, China realizes it should prepare itself well in science and technology, especially by pioneering frontiers of advanced and emerging technology. According to a timetable released by the Chinese Minister for Science and Technology at the annual national conference on science and technology in January 2002, China plans to launch research into key technologies in a fight against foreign competitors' monopoly in strategic advanced technologies. China is setting patent management and the establishment of technical standards to cope with increasing world competition in science and technology. The Ministry poured 450 million yuan (\$54.2 million) in 2001 into improving conditions for research and making industrial use of scientific discoveries (*People's Daily*, January 10, 2002, pp. 1-2).

There is an irony in that China's competitiveness in science and technology is still not strong enough to cater for the keen international competition. The Global Competitiveness Report of the International Institute for Management Development (April, 2002) has ranked China's

competitiveness the world as 31st in 2002, 33rd in 2001, downgraded from 28th in 2000, 25th in 1999, and 13th in 1998. China's decline in ranking is mainly due to the relatively small amount of funds put aside for research and development. Only by making greater efforts in science and technology can China catch up with the developed countries in competitiveness.

Although ancient China contributed significantly to the development of world science and technology, today's China lags far behind industrialized countries. The primary reason lies in the international knowledge system—the people and institutions that create the knowledge edge, and the structures that communicate knowledge (Altbach, 1998, p. 193). The worldwide scientific communications system is still centered in and dominated by the research-producing nations. The most recent innovations in scientific communications, databases, and information networks are also located in the industrialized nations, especially in the United States.

On the other side of the fence, China is a science and technology giant among developing countries with relatively well-developed basic scientific and technological infrastructures including scientific laboratories, universities, a network of scientific journals, and large numbers of scientists and researchers. China has, particularly recently, promulgated ambitious scientific plans and has taken scientific development seriously. By focusing on extending its scientific base and supporting scientific research and higher education, China's scientific research has been sustained at a reasonable level (Thulstrup, 1992).

Since the reopening to the outside world, China's representation in the international scientific community has grown rapidly. The number of papers by China's scholars that appeared in prestigious mainstream journals in sciences and social sciences was 1,293 in 1981 but, had climbed to 11,435 by 1995. The number of citations was only 8,517 in 1981–85, but had reached 77,841 by the 1993–97 period (World Bank, 2000, p. 124).

These encouraging achievements of Chinese researchers are closely related to China's recent economic growth and the increasing investment on science, technology and education. The Chinese government is aware of the fact that it remains an arduous task for China to catch up with the world in cutting-edge science and technology. It is equally aware that knowledge accumulation has been one of the major factors in economic development and is increasing at the core of China's competitive advantage. The weapons in this new war of global economic competition

are high technology and human skill. Higher education institutions are therefore in the frontline.

A SOLID FOUNDATION OF BASIC EDUCATION

Mass higher education has evolved from mass elementary education. The historical order of the development of mass education is from elementary to secondary and further to higher education. This order is irreversible. As noted above, China's premature plan to universalize higher education in the late 1950s with a reversal of post-secondary education enrollments and senior secondary school graduates could only lead to twists and turns, resulting in great losses in education and the economy. How far China can move towards mass higher education also depends on the compacted thickness of its basic education.

China's citizens were better educated at the end of the 1990s, however, than at the beginning. The growth of the population with secondary and higher education was particularly rapid. Middle school graduates rose from about 23 for every 100 persons in 1990 to 34 in 2000. Those with any higher education remain a tiny elite, but a fast growing one. Those attending junior college or above jumped from 1.4 to 3.6 percent of the population in the decade. The illiterate population also continued its long decline. In 1964 nearly one-third of Chinese aged 15 or over were illiterate or semi-illiterate, a number reduced to 15.9 percent in 1990. By 2000 this had fallen to 6.72 percent.

According to the national education statistics released by the Ministry of Education (June 3, 2002), China had 491,300 primary schools by 2001, with 19,442,100 primary students and an enrollment rate of 99.05 percent. Junior secondary graduates numbered 22,878,500 with a gross enrollment ratio of 88.7 percent. Half of the age cohorts graduated from senior secondary school, totaled 22,460,500. The gross enrollment ratio of the whole secondary education was around 82 percent.

Based on the previous experience of other countries, mass higher education starts when higher education gross enrollment ratios reach 15 percent, a time when secondary education gross enrollment ratios reach 50 percent. This shows that the stress on the universalization of 9 years compulsory education laid by the Chinese government in recent decades has paved the way for forms of mass higher education. China's higher education will and should have a rapid growth in the coming decades.

THE WORLD'S LARGEST POPULATION

Compared to some of its neighbors such as Japan and Korea, China lags behind in the participation of its population in higher education. As early as the 1950s, India had already built up one of the largest higher education systems in the world with gross enrollment ratios of 1 percent in 1950 and 8.19 percent in 1970. From 1970 to 1996, Indian higher education student numbers increased three times. Within the same period, students increased 2.2 times in Japan and 1.8 times in the United States. However, the gross enrollment ratios increased 159 and 71 percent in Japan and the United States, respectively, while they decreased 6.9 percent in India. The reason was directly linked to population growth: while the age cohorts declined in Japan and the United States, they climbed in India far more rapidly than the increase of university student numbers. India would have long reached mass higher education stage if the Indian population had grown less rapidly.

The Indian past could also represent the Chinese prologue. China currently has the world's largest population. However, according to the 2000 Census of China, only 36.09 percent of the Chinese population live in urban areas (Population Census Office, 2001). By 2000, five million were still in poverty, particularly in rural regions. Although China has maintained a fairly rapid economic growth, its urbanization proceeds relatively slowly, with huge amount of surplus labor to be transferred. At the same time, a large number of laid-off workers from state-owned enterprises are waiting for reemployment in urban areas. All these demand careful management, with control over population growth on the one hand and rapid development of post-secondary vocational-technical education on the other. Any strategic decision on massification of higher education in China will need to take population factors into serious account. As a developing country with a large population, the path to mass higher education is doomed to be rough and bumpy.

STRATEGIC CHOICES

Currently, there are heated debates in China in relation to the appropriate approaches to a smooth transformation from elite to mass higher education. While it is widely accepted that mass higher education is approaching fast, issues including the structure, financing, expansion and

regional balance in higher education are open to question. A further scrutiny reveals that even at a more fundamental level, the arguments are in diametric contradiction to each other. For example, while some insist that mass higher education does not suit China because of China's less solid national strength, many others criticize this viewpoint and see China's adoption of mass higher education as "a strategic choice", or even "the only way" (Xie, 2001, pp. 2-3). Other issues such as the relationship between higher education expansion, economic growth, and funding sources for higher education are also contested. Some key issues identified by the Chinese are reported and analyzed below, together with some disparities and similarities compared to the practice in other countries. These are suggestions about potential strategies.

SHIFTING TOWARDS VOCATIONALISM

It has been shown by the previous experience of various countries, developed and developing, that mass higher education aims primarily at training professional personnel to meet societal demands. The vocational function of higher education has introduced mass and universal higher education into society, at the same time draws elite higher education institutions closer to practical needs, and thus has strengthened the adaptability of the whole higher education sector. The service function of mass and universal higher education institutions caters for the rising social demand for higher education opportunities on the one hand, and protects teaching and research usually conducted in research universities at higher levels. The shift toward vocationalism and mass forms in higher education echo each other to demonstrate the demand of new modes of economic production in what is referred to as the "knowledge society".

China's secondary school graduates who do not score highly enough to gain admission to a 4-year, degree-granting university may opt to enter a variety of other post-secondary education institutions. Non-university post-secondary institutions in China are a new type of regular institutions. They resemble American community colleges to some extent. Such institutions include workers' colleges, upper-level specialized colleges (*dazhuan*) and vocational-technical colleges (*gaodeng zhiye jishu xueyuan*). Most have a two/three-year program designed to be terminal in nature, leading to a diploma.

China's post-secondary vocational-technical education did not start to take root until the early 1980s when many localities established their

post-secondary institutions to train skilled professionals, technicians and managers badly needed by regional economies at the intermediate level and in the localities.⁷ Before the 1980s, neither the national nor the provincial institutions would consider the need for these types of jobs.

The non-university institutions possess some unique features that differ from other Chinese higher education institutions. They are locally administrated and primarily financed at the city level, with comprehensive curricula and short-cycle programs that are vocational-technical in nature. Their programs are closely linked to local industry and business needs and include optometry, tourism, horticulture, industrial arts and crafts, commodity inspection and maintenance, and nursing, to name only a few.

Knowledge of a particular field and demonstrated applied skill in the field are the required dual qualifications for faculty members at these institutions. Most of the institutions have found it difficult to recruit sufficient qualified full-time faculty, and therefore employ many part-time members.

The funding sources for these institutions are various. Annual appropriation from the city governments based on student head count is the major one, together with tuition and fees. Other non-regular financial supports come from business sectors, overseas Chinese and international organizations. They also depend on individuals for donations of books, facilities and other teaching-related materials. Most recently, funds generated from providing training services to local enterprises are a growing source of support.

After over 20 years construction, China had 161 post-secondary vocational-technical institutions with 234,000 enrollments in 1999. These institutions join adult post-secondary institutes and 3-year specialized colleges to enroll about one-third of the post-secondary student population, totaling 3,986,000 in 1999 (Table 8.6).

China's Tenth Five-Year Plan (2001-2005) attached greater importance to the high-tech industry. Within a wider pattern of global economic competition, China's effective participation relies heavily on how it manages the interaction between information technology, knowledge production,

⁷The contemporary cities in China are ranked in three kinds according to their administrative levels: the county level, the prefecture level and the province/autonomous region level. The size of the cities at the prefecture level is medium. These cities play a significant role in regional development. They are thus called *zongxing chengshi* (central cities). In the 1980s of the last century, many new types of post-secondary institutions emerged in these cities, particularly in more developed provinces such as Guangdong. The institutions are under the jurisdiction of the local city governments.

Table 8.6: Statistics of Upper-Level Vocational-Technical and Specialized Colleges, 2000

Type	Institutions	First-year Enrollments (thousand)	Graduates (thousand)	Total Enrollments (thousand)
Adult higher education	772	1,561.5	880.4	3,536.4
Three-year specialized programs				
Upper-level specialized college	442	486.86	178.46	1,008.69
Upper-level vocational-technical	184	194.33	42.45	361.77
Total	1,398	2,242.69	1,101.31	4,906.87
Proportion to the whole higher education	77.11%	41.17%	60.17%	52.21%

Source: www.edu.cn/20011219/3014655.shtml on October 11, 2001.

human resources, and institutions. The new modes of China's economic production will be increasingly dependent on knowledge and information technology. If knowledge is the electricity of the new information international economy, then Chinese institutions of higher education will be the power sources on which a new development process must rely. At present, vocational-technical institutions have a particularly significant role to play. China's authorities now place great value on vocational-technical education. The Action Plan to Vitalize Education in the 21st century requires that vocational and adult education be further developed to train a large number of junior- and middle-level professional and skilled workers (*Guangming Daily*, February 25, 1999, p. 3).

However, while Chinese societies have been well known for their emphasis on education, Chinese parents and students generally view vocational-technical colleges as a second choice to universities. Compared to the traditional elite higher education, post-secondary vocational-technical education often meets frosty reception in the upsurge of university enrollment expansion. In Henan, for example, only about half of those who received admission notice from post-secondary vocational-technical institutions registered finally in 1999. The percentages were similar in

Shaanxi and Jilin (*China Education Daily*, January 10, 2000, p. 3). When post-secondary vocational-technical institutions in Beijing planned to recruit 1,755 students to 3-year specialized college programs in 2000, they only received 1,100 applications (*China Education Daily*, June 14, 2000, p. 1).

There are some direct reasons for the depressing state of post-secondary vocational-technical education. First, many post-secondary vocational-technical institutions started hastily. Little is known about them. This is especially the case with those vocational-technical programs offered by universities. In early 1999, for example, many universities received notice to start the programs within that year. Second, there has been a deviation in enrollment policy. Vocational-technical institutions were required to recruit students after other institutions, leaving the populace with an impression of inferiority. Third, tuitions of Chinese post-secondary vocational-technical institutions are unreasonably high, often two to three times more than the average annual tuition for undergraduate education at a university. Fourth, many vocational-technical institutions emulate universities in designing their programs, which are not sufficiently vocational-technical, and even become the compressed undergraduate programs. Fifth, vocational-technical education at diploma level lacks integration with undergraduate and graduate programs.

The above-mentioned factors collectively exert a strong impact on China's post-secondary vocational-technical education. The present situation is that while the government hankers for expansion in the vocational-technical part of post-secondary education, response from the society has been cold. Overall, post-secondary vocational-technical education oriented to societal demands walks haltingly on its way to growth.

A further scrutiny into the unimpressive development in China's post-secondary vocational-technical education reveals some reasons for their slow growth at more fundamental levels. First, vocational-technical institutions that are designated to be oriented to societal needs and to train skilled technicians who will develop, implement, operate and maintain the new technologies in a knowledge society still adhere to the elite intellectual and scientific culture that only benefits the privileged (Scott, 1995). Many vocational-technical institutions are offering programs leading to a diploma, but they call themselves a university.⁸ If given the choice,

⁸By the close of the 1980s, the Ministry of Education urged 2/3-year specialized colleges, of which many had named themselves as a university, to rename themselves as colleges. Many of them, however, still translate their names as universities in their English version web sites, for example.

directors of these institutions would choose to upgrade themselves to 4-year universities, rather than to become 2-year colleges. Such a mindset has its deep roots in the Confucian culture.

Second, post-secondary vocational-technical education is still much divorced from localities whether or not to expand and to what extent they are in the control of the central government. With all the rhetoric of decentralization and institutional autonomy, the Chinese higher educational system remains highly centralized. For example, within the 47 percent enrollment expansion in 1999, while many 4-year universities including those research-intensive key institutions were assigned specific overload quotas,⁹ many vocationally oriented institutions, private or public, could not recruit a sufficient number of students.

Third, Chinese post-secondary vocational-technical education has not been well integrated with other parts of the whole higher education sector. The practice of transferring from these institutions to universities does not exist in China, although there is discussion about its merits. There are, however, some encouraging signs of new developments. In 2000, Anhui recruited 5000 students in an experimental 5-year vocational program built on a post-secondary vocational-technical program (*China Education Daily*, June 9, 2000, p. 1). Shanghai accepted students from vocational-technical institutions to join undergraduate classes in regular higher learning institutions in the middle of courses (*China Education Daily*, May 31, 2000, p. 1). Jiangxi has removed the obstacle to entry into undergraduate programs from vocational-technical diploma programs (*China Education Daily*, June 21, 2000, p. 1). In Tianjin, local communities are increasingly encouraged to participate in the development of post-secondary vocational-technical education (*China Education Daily*, April 3, 2000, p. 1).

DIVERSIFYING POST-SECONDARY EDUCATION SYSTEM

A diversified system has proved to be a necessary approach to strengthening the shift from elite to mass higher education by the practical experience of different nations. In response to mass higher education,

⁹Overall, the administration of higher education institutions follows “vertical” and “horizontal” patterns of general public administration in the PRC. There are institutions all over the country that are administered in the “vertical” system by ministries of the central government. Most of these institutions are designated as key institutions. Another system is the “horizontal” system where institutions within a locality are administered by the local authorities mainly the provincial government.

greater diversity of educational offerings has emerged in most countries, where different types of institutions, different lengths of study programs, and varying modes of instructional delivery have been introduced as ways to accommodate rapid enrollment expansion (El-Khawas, 1998). It is a life-long learning system in which every sub-sector at different levels is linked to each other, with a variety of students and curricula.

A completely diversified higher education system serves different purposes: (1) it provides lower strata with easier access to post-secondary education at a lower unit cost, and therefore softens tensions between classes; (2) it increases the participation of traditional disadvantaged groups in post-secondary education; (3) it raises the education level of the masses and further improves their employability. Research has shown that education level is in inverse proportion to unemployment. Modern mass higher education teaches people not to become too closely devoted to one occupation or a single set of skills. It prepares them for changes (Gibbons, 1998).

A diversified post-secondary education system then pushes massification of higher education to become a central focus of the society. There is a shift from elite to mass forms of higher education. It has led to the erosion of the elite intellectual and scientific culture. Mass higher education systems necessarily have lower unit costs than elite systems because they have to cater for much larger numbers of students and because they cannot make the same claim to privileged treatment. It is in this vein that Martin Trow (1973) criticized the modern British elite higher education model. A diversified higher education system both safeguards and substantializes massification of higher education.

A diversified post-secondary education system is a practical option necessarily determined by China's national conditions. In 1999 alone, China admitted some 2.8 million new students into higher education. China claims that it educates one-quarter of the world's students on 1 percent of the world's education budget (National Center for Education Development Research, 2001, p. 4). According to the experience of various countries, the growth of mass system is taking place against a background of socio-economic transformation that is both rapid and profound. Mass higher education is more than the linear successor of elite higher education because sociologically and epistemologically it represents a break with past continuities (Scott, 1995, p. 172). New institutions emerge in the process of massification, reflecting the participation of new social forces in higher education and demonstrating varying demands from the mass for higher education.

Although China's higher education is only in the transitional pre-mass stage between elite and mass higher education, most of the education models and ideas originated in industrialized nations have already been introduced into China. As a latecomer massification of higher education, China can select from a wide range of successful practices in other nations, shorten its exploratory period, and create its own model to achieve mass higher education. A diversified post-secondary education system should be based squarely on the current condition of China. To achieve this goal, two major strategies have been identified.

Particular Functions Performed in Different Directions

The global economy is altering the nature of research, touching the heartland of the university, its modes of organization, and its core values. For a long time, universities have sought to establish themselves as the prime institutions for carrying out basic research, while applied research was left to government or industrial laboratories. Now the global nature of knowledge production is rendering this institutional division of labor less and less relevant (Gibbons, 1998). The tendency to vocationalism is especially evident in mass higher education systems.

To be oriented to vocationalism, mass higher education needs to target directly socio-economic needs. While it is true that universities still retain their role as the "conscience of society", the critical function of universities have been displayed in favor of a more pragmatic role in terms of the provision of qualified manpower and the production of knowledge. Chinese universities are increasingly required to be relevant. Such a view, judged primarily in relation to their contribution to economic development, constitutes a major shift in perspective and values from the perspective presented to an earlier age by the likes of von Humboldt and Newman in the West and Confucius and Cai Yuan-pei in China.¹⁰

¹⁰ Cai Yuan-pei was one of the most influential figures in Chinese modern history of higher education. He succeeded first in passing the Chinese imperial examination. Then he went to study in Europe, mainly in Germany, for many years. Upon his return to China, Cai was briefly the minister for education in 1912, and then the Chancellor of Peking University from 1917. When he was in these positions, he embarked on a series of reforms with substantial historical significance. Peking University under Cai was the first real university. During his service at Peking University, Cai introduced the ideas of university autonomy and academic freedom, and the Humboldtian university model. For a thorough discussion, see William Duiker (1977). *Ts'ai Yuan-p'ei: Educator of Modern China*. University Park and London: Pennsylvania State University Press.

As the entire post-secondary education system becomes more diversified, Chinese higher institutions themselves become more differentiated, with the inclusion of new faculties and departments representing subjects formerly excluded from traditional universities, preparing students for new or semi-professions.

At present China has 1,000 strong vocational-technical institutions at junior secondary, diploma and undergraduate levels, with an intake of some 4 million students. This is a reasonable scale. Yet there have been two worrying signs in recent years: the employment difficulty faced by the graduates from these institutions, and the surprisingly low registration rate of the admitted students. The post-secondary vocational-technical education built up under the planned system has increasingly demonstrated its clumsiness to suit ever-changing demands from the rapid industrial structural adjustment in China's transitional economy.

The role of vocational-technical education within China's post-secondary education system has not been defined clearly. This is indeed where the problem arises. Various sub-sectors and institutions of different types in higher education system need to identify their dissimilar locations and orientations. By performing their particular tasks they foster their unique sectoral and institutional characteristics: research-intensive universities tie themselves in with high-tech enterprises;¹¹ provincial teaching universities partner regional trades in varying industrial collaborative projects in the light of local conditions; vocational-technical institutions work closely with enterprises to provide the much-needed training to produce skilled technicians to support technological and industrial development.

Attacks on Segmentation

Like many developing countries where the higher education system is at crossroads between an elite higher education and a completely mass higher education system, such as Brazil (Eisemon and Holm-Nielsen, 1995) and Chile (World Bank, 1998), China's higher education system is still fairly segmented. Transfer between the different institutional levels is limited, hampering the aspirations of learners and affecting equity, as well as linkages with the public sectors, and regional development.

¹¹ At present, such a tie often takes the form of building up scientific parks. However, many of these parks have failed to attract investment from high-tech companies as shown similarly by the American experience from 1975 to 1985.

A diversified higher education system, however, has begun to take shape in China, with a wide range of post-secondary institutions from public to private institutes covering regular, adult, television and radio institutions, and examination-based self-study higher education. Nevertheless, a coherent linkage between them is still lacking. In addition to the aforementioned impasse for graduates from vocational-technical specialized colleges to enroll for university undergraduate programs, there has been little link at the diploma level between adult, television and radio institutions, and examination-based self-study higher education. In effect, such a close system drives most secondary school graduates to swarm towards traditional elite universities with little regard to vocational-technical institutions.

In 2000, for example, while public universities had to raise entrance ranks to sift out large number of candidates, many vocational-technical and private institutions could hardly find sufficient number of applicants. One private university planned to recruit 400 students into its undergraduate programs, only 6 candidates applied. Such a fact has substantially reduced the function of non-regular institutions to relax the tension between societal demand and higher education supply.

At the same time, research universities are forced to overtake students, while their teaching and research work are much affected. Such a system further strengthens the “malposition” phenomenon: while institutions at lower levels strive to reach university status and even deliver postgraduate education to heighten their social reputation, universities, including some prestigious ones, exploit their brand effect to offer programs at lower levels to attract tuition and fees from students. This will inevitably affect China’s massification of higher education by bogging it down in a quagmire in an “expansion of traditional elite higher education”.

As shown particularly clearly by the modern British history of higher education, there could be sharp conflicts between the notions of mass and elite higher education. Higher institutions oriented to utilitarian needs were established, assimilated later by traditional elite universities, and then upgraded to become traditional universities. As a result, the massification of British higher education was substantially delayed. Such a historical lesson has much to teach the Chinese. Special attention needs to be given to societal practical demands and individual students’ development. Obstacles to the linkage between various sub-sectors in higher education must be removed. Graduates from vocational-technical institutions should have opportunities to further their studies if they wish. Such measures can

benefit the development of vocational-technical institutions by increasing their student numbers and by strengthening their contributions to local needs.

In a nutshell, once the diversity of educational offerings has been expanded, the adaptability of the higher education sector will be enhanced and the rapid expansion of higher education scale can be maintained. It is also important to note that such a diversified, internally opened system cannot be sophisticated overnight. Its implementation also relies on the equilibrium of supply and demand, and on the harmonization between quantitative and qualitative development.

TRANSFORMING MODES OF GOVERNANCE

The increasing interdependence and connectedness of nation-states have made the state a declining autonomous decision-making body (Mok, 2001). The role of the nation-states has had a fundamental change from a “provider of welfare benefits” to a “builder of market roles” (Sbragia, 2000). Introducing market principles and practices to manage the public sector has inevitably transformed society into an “audit society” (Power, 1997), or “performative society” (Ball, 2000), turning the traditional welfare states into “competitive states” (Cerny, 1996), or “evaluative states” which attach importance to effectiveness, efficiency, and economy in public sector management (Henkel, 1998; Kogan and Hanney, 2000).

It is against such a global policy context that higher education has become a tool for achieving an integrated global system along market lines (Ball, 1998). The change in governance ideology in higher education has altered the ways in which universities are managed (Slaughter and Leslie, 1997; Braun and Merrien, 1999). Due to the influence of supranational organizations including the World Bank and with China’s recent entry into the WTO, market ideologies are becoming popular in the Chinese higher education circles, regarded either as correct or as inevitable. Proponents of such ideologies believe that no government is able to pay fully for the transition from elite to mass and from mass to near universal higher education, so that for quality to be maintained institutions are going to have to generate an increasing amount of resources either from students or from other private sources.

However, this is just not accurate. There are a number of countries now defying these ideas and thus create space for more skepticism about market ideologies. Norway and many European countries, for instance,

have free higher education and have mass education systems. Norway's enrollments are now greater than the United States. Germany has in its constitution to provide free education. German universities cannot even charge foreign students. France also has very small tuition fees. Both France and Germany have large populations with very high enrollments, almost reaching the US levels.

In spite of the striking differences, the experience of many countries has generally indicated a necessary combination of private and public funding sources in the process of higher education massification. For example, the United Kingdom and the United States both chose to rely on public funding after World War II to strengthen the role of the state in order to quicken their steps toward mass higher education. The proportion of British government contribution to higher education funding increased from 35 percent in 1940 to 72 percent in 1965, and 78 percent in 1975 (Trow, 1978, p. 42). In the United States, the proportion of government funding was 31.6 percent in 1909–10, 37.5 percent in 1939–40, 58 percent in 1969–70, and 51.3 percent in 1989–90 (National Center for Education Statistics, 1993, p. 89).

Japan and Korea, however, relied much on private higher institutions to achieve massification of higher education. This was not achieved by altering traditional universities. Instead, new types of institutions were established to suit the massive demand from society. Furthermore, their reliance on private institutions was on condition that public higher education had been the dominating force in the societies. These different experiences show that within the process of higher education massification, new forces emerge to work together with, rather than replace, traditional forces. Mass higher education demands contributions made by a variety of forces in a society.

For China, a developing country still restricted strongly by the lingering impact of longstanding "socialist" public ownership, one practical approach to mass higher education is to diversify its channels for resources. Therefore, private institutions are bound to play a significant role. Based on historical lessons and practical conditions, China started to transform from elite to mass higher education in the late 1950s with fixed targets and clearly defined plans. The motive force was socialist construction, in which the state was almost the single provider of funding. China's previous experience in the 1950s and 1960s admonishes us of the insolvency of the state alone to bear this task. One major reason for the relatively smooth development in the 1980s and 1990s is the diversification of

resource channels via donation from society, enterprises, public institutions, and individuals. Universities are increasingly urged to cooperate with the private sector, and respond to market needs (World Bank, 1997, p. 43). Indeed, the private sector is becoming increasingly evident in China both within and without higher education (Bray, 1998).

Another crucial restricting factor of mass higher education development in China is its current national condition. China has 1.265 billion people as of November 1, 2000, of which about 10 percent are full-time students and 63.91 percent are in rural areas (Population Census Office, 2001). The PRC accounts for approximately 21 percent of the human population. China is still the most populous nation, a title it will not cede to India for another 4–5 decades. Millions of Chinese are still living below the absolute poverty line.

Meanwhile, under the impact of global market forces, there has been a general trend toward the reduction of per capita public funding to higher education, despite the continuing increase in student enrollments (Johnstone, 1998). Money everywhere is scarce. For example, state appropriations for higher education, the single largest source of public funding for higher education in the United States, has declined a whopping 8.7 percent in just over a decade.

China is no exception. The burden of funding higher education is being shifted more and more to the shoulders of the individual. Non-governmental funding sources are becoming crucial. Private institutions are resurging like bamboo shoots after a spring rain, as it is often referred to in China. There are already over 1,400 *minban* colleges and universities serving over 1 million students. However, only 37 are permitted by the Ministry of Education to confer diplomas, and of these, only 4 can confer Bachelor degrees, while 157 have been allowed to experiment in providing higher education (Xie, 2001, p. 184). Although those that have been accredited by the central government only consist of a small part, the total number of private institutions is growing fast, and their status is becoming increasingly legitimate.

In consideration of future goals and current conditions, China has adopted the following specific approaches to mass forms of higher education. Their long-term repercussions, however, remain to be seen.

First, individuals and enterprises are encouraged more to establish post-secondary institutions. At present, when a private institution is founded, it is hard to attend to each and every aspect of a matter. It is the responsibility of the Chinese governments at various levels to give support to improve the

institution's operation. To achieve this, some specific policies and regulations are called for. With the newly issued Higher Education Law (*Gaodeng Jiaoyu Fa*), China has made a good start in this regard.

Second, within one single institution, it is now possible to operate on a basis of one university two systems. A private institution can be built up with affiliation to a public university. By so doing, the parent university can be directly involved in the quality assurance at its affiliated private institution, while graduates from the institution can be conferred qualifications by the parent university. By 2000, there had been more than 10 such institutions scattered in Guangdong, Jiangshu and Zhejiang, with Shichuan and Fujian following suit closely.

Third, education shares are being tried out. The stock market is closely associated with the free market economy. Education shares have been reported as an effective way to raise education funds. Some private institutions are operated as businesses. According to a few publications in China, this can improve teachers' morale and help maintain the stable development of these institutions. One typical example is Hualian University at Guangzhou, which successfully solved its funding problems and has financially benefited its shareholders (Xie, 2001, p. 186). In 1998, Zhejiang formulated a policy to specifically allow funds to be raised by means of education shares.

GIVING EFFICIENCY THE HIGHEST PRIORITY

Disparities in receiving higher education between different geographical areas and social classes are evident in the process of massification in many countries. At present, while 30–40 percent of the age cohorts in major cities has an opportunity to receive higher education, the percentage in remote areas is between 3 and 5 percent.

Historically, disparities between urban and rural areas and between the rich and the poor have been a longstanding issue in China. According to 1931 statistics, 80 percent of the 103 higher institutions were concentrated in the coastal provinces in the east, the two biggest cities, Shanghai and Beiping (Beijing), both had 37 (36 percent), only 9 (8.7 percent) institutions were in Western provinces including Guangxi, Guizhou, Shichuan, and Suiyuan (Inner Mongolia) (Xie, 2001, p. 208).

At the initial stage of the PRC, when the communist government worked out its plans for national construction and education development,

the whole nation was divided into coastal and interior regions. Some departments in the big cities in the coastal east were moved to inland medium-sized cities during the 1950s reorganizations. The reform was targeted at reducing disparities and at ensuring that higher education was available to students from workers' and peasants' families (He, 1998, pp. 92-93). Within the period, Shanghai higher institutions decreased from 37 in 1949 to 15 in 1953, while institutions in Guangdong and Fujian changed from 12 to 7 and 8 to 4, respectively. Meanwhile, inland institutions increased considerably, from 3 to 7 in Shaanxi, 2 to 4 in Inner Mongolia (Ministry of Education, 1979, p. 214).

As a result, the gap in higher education development between the coastal and inland areas was reduced. More opportunities were created for cadres and youth from workers' and peasant families. The People's University of China, for example, recruited 2,981 such students (He, 1998, p. 92). According to a national survey, in the 1950s and 1960s, university students from workers' and peasants' family backgrounds increased substantially: the proportion of university students from peasants families to the national intake changed from 16.5 percent in 1952 to 39.5 percent in 1960, and 53.8 percent in 1965 (Ministry of Education, 1979, p. 85).

Starting from the 1960s in the last century, from a national defense point of view, the Chinese government divided the whole country into three lines: the frontline were coastal eastern provinces, the second and the third lines included Hunan, Sichuan, Guizhou, Guangxi, Hubei, Shaanxi, Ganshu, Ningxia, Hebei, and 10 other provinces. About 62.7 percent of the national infrastructure construction was transferred to the third line. Despite its lower economic effectiveness, such a strategy acted as a strong dynamic to promote higher education growth in the inland, with the highest in the far west region.

Since the late 1970s, China set its targets at modernization. The geographical advantage of the coastal east was again exploited. Accordingly, policy privileges were given to the east. From 1985 to 1995, 87.3 percent of national foreign investment was in the east, while only 8.5 and 4.2 percent went to the central and western regions, respectively (Wei, 1997, pp. 10-11). Meanwhile, great disparities also existed among western provinces.

Correspondingly, higher education development was again imbalanced. This was further fuelled by two factors: first, education reforms have been aimed at devolution and decentralization. With regional economic development, higher education development was linked closely to

the regional economic situation, and therefore widened the gap between different regional higher education systems. For example, while the proportion of students grew rapidly in Beijing, Shanghai and Tianjing from 1978 to 2000, the difference between these major centers and the remote areas including Tibet, Ganshu, Qinghai, Ningxia and Guizhou, is widening even more strikingly than that of 1931.

Second, the move towards marketization has increased the capacity of local governments in exercising their influence on higher education development, especially via financing. The funding for every student differs considerably from region to region. Those in more affluent areas such as Shanghai and Guangdong are often three times more than that in the inland provinces (Xie, 2001, p. 215). This has contributed greatly to imbalanced regional higher education development. Within the Chinese academic circle, regional higher education development has been a matter for debate. Despite the ongoing controversy among academics, disparities have become a serious concern of the government as a threat to social stability. Under the intervention of the central government, a variety of measures have been taken to promote higher education development in the west. They are further enhanced by China's current ambitious plan to develop its western region (*China Education Daily*, April 27, 2000, p. 1; March 5, 2001, pp. 1-2; June 13, 2001, p. 2). However, due to various historical and contemporary reasons, the situation cannot be changed overnight. It may even become worse before it gets better.

Nationwide, higher education will develop far more vigorously in the thriving export-oriented coastal zones than that in the interior. In consideration of the great variation across provinces according to available human, financial and material resources, the central government will not try to restrain the rapid higher education growth in the east, while giving special regard to the development in the west, a strategic plan commonly referred to as "efficiency claims precedence and fairness is to be taken into consideration also" (*xiaolü youxian jiangu gongping*). To achieve this, two measures were adopted:

First, major efforts were being devoted to developing examination-based self-study higher education. The education opportunities provided by regular universities are normally for the youth with urban family background, only one-sixth were rural youth. Research has revealed that city youth were, respectively, 9.6-12.8 and 5.8 times more likely to receive higher education than their peers in rural areas in the 1980s and 1990s (Xie, 2001, pp. 218-219). For female rural youth, chance is even slimmer.

In order to improve the participation of socially disadvantaged groups, to simply rely on government special enrollment policy does not suffice. New creative methods are in great demand. Examination-based self-study higher education is certainly a realistic, effective way.

According to a survey in 2001, the percentage of female candidates for examination-based self-study higher education reached 58.6 percent. Also, an overwhelming proportion of examination-based self-study higher education candidates are from low-income family background. In terms of their profession, half of the candidates in 2000 were workers, peasants and unemployed youth (Xie, 2001, p. 222). All these show collectively that examination-based self-study higher education functions effectively to reduce disparities in higher education provision between geographical areas and among social classes.

Second, in line with international trends, an expansion of educational offerings by distance learning was a response to mass higher education to accommodate rapid enrollment growth (El-Khawas, 1998). The Chinese government has taken distance education seriously as a means of providing higher education to the masses. The Ministry of Education plans to have 5 million students in 50–100 online colleges by 2005 (Walfish, 2001). By using modern information and communication technologies, distance education can provide more people with better access to education at various levels and more locations. These features suit China's vast territory and striking regional disparities. In view of this, China has recently built up a distance education network in the west covering 12 provinces. China has also been trying to fully exploit the potential of the Internet since mid-1980s. The Chinese Education and Research Network (CERNET), for example, was established in 1986 to deliver qualified education all over China, with special targets at rural and remote areas.

PARADOXICAL MOVEMENTS

With the recent accession to the WTO and the exponential use of the Internet, China is accelerating its integration with the rest of the world. Chinese higher education, while being ascribed as a key supporting role in the drive to modernize the nation, is gaining stronger links with the international community (Yang, 2002). It is no longer immune from international forces, and thus has to confront new challenges. One of them is to reconcile the local and the global (Yang, 2000). Against such a context,

a series of paradoxical movements have been demonstrated within its present march toward mass higher education.

OPPORTUNITIES LOST IN THE MASSIFICATION OF HIGHER EDUCATION

The expansion of higher education scale has greatly relaxed the long-standing gap between social demand and higher education supply. Many Chinese people, especially those in affluent areas such as major cities and coastal areas, benefit much from such a rapid growth in higher education. In Beijing, for example, the municipal education commission declared that it would raise its higher education participation rate in 2001 to 70 percent of senior secondary school graduates (*China Education Daily*, March 24, 2001, p. 1).

According to *Wenhui Daily* (August 16, 2001), higher education enrollment in Shanghai has reached 38.8 percent of the 18–22 ages cohort, 372,000 students are currently studying in either regular or adult higher education institutions in Shanghai, and 232 of every 10,000 Shanghai residents have received post-secondary education.

In Jiangsu Province, the student population in higher education reached 480,000 with a gross enrollment ratio of 15 percent by the first half of 2001, and was over 700,000 later in the year with an intake of around 220,000 new students. At the current annual growth of 10 percent, Jiangsu is expected to have over one million university students by 2010, and thus will become China's first province to start the transition from elite to mass higher education.

Gradually, the situation that a large number of senior secondary school graduates go to various institutions to receive their post-secondary education has begun to take shape nationwide. The tension caused by thousands of senior secondary school graduates competing for a very limited number of places in universities has been lessened. However, the groups that are located at the bottom of social resource distribution with the lowest living standards are obviously losing their opportunities in this massive expansion of higher education.

Enrolled Students from Poor Families

China is now in transition. The transformation of its social structure has brought fast changes to social stratification (Bray and Borevskaya, 2001). This has thrown a spotlight on the disadvantaged social groups who

have remained in the dark corners of China for some time. One fundamental feature of such groups is poverty (Townsend, 1979). According to a study conducted by the Chinese Academy of Social Sciences, the population of the disadvantaged social groups totaled over 80 million, 7 percent of China's overall population (Jiang, 1996, p. 9).

The issue of some university students as a disadvantaged group started in 1997 when Chinese universities began to charge students tuition and accommodation fees. This was against the background of strikingly imbalanced economic developments in different regions. In Jiangxi, 10.5 percent of the total student population within its 32 higher education institutions were from poor families, of which 5 percent of families totally lost their capacity to support their children. Similarly, 11.8 percent of the students on 27 campuses in Helongjiang were from poor families, and 4.9 percent of students were from families in absolute poverty. Such students occupied 10 percent of the total national university student population (Jiang, 1996). In teacher-training institutions, their proportion is often much larger. This is because the Chinese government has subsidized those who choose to become teachers. Such support, however, is greatly offset as Chinese universities face increasing financial difficulties and are required to raise their funds.

As China's transformation from the planned to a market economy, the workers laid-off from the previous state-owned enterprises and some people from remote areas are much disadvantaged. By the late 1990s, when student fees were considered relatively low, a student needed at least 10,000–10,500 *yuan* annually for a 10-month academic year. Such an amount was already astronomical to many families. Only 8 percent of students' families could cope with the whole amount on their own, 22 percent could only manage half of the amount, and 44 percent could afford less than one-third, and 10 percent of students felt absolutely helpless with the amount (*China Education Daily*, March 28, 2001, p. 1).

Chinese parents are well known for being hard savers for their child's education, and the hardships they experience are often unimaginable for many of those living in affluent, industrialized nations. However, as many families are in absolute poverty, they have no way to save money and it is hard for them to borrow. In such cases, assistance from universities, although vital, cannot suffice.

Without sufficient financial support, these students' lives are under threat. The straitened circumstances also exert strong impacts on such students' mental and social life. While many of these students face their

economic difficulties courageously, some are often under great mental pressure. The Chinese governments at various levels and higher education institutions have worked together to develop some policies. Yet, within a globalized context of increasing competition, corporate managerialism, efficiency, and accountability in higher education worldwide (Tierney, 1999), "efficiency" has been given the highest priority in China. University students from poor families will continue to be a knotty issue well into the coming years.

Opportunities for Receiving Higher Education in Less Developed Regions

Globalization has never created global equality. In effect it makes the rich richer, guarantees the perpetuation of privilege, and maintains the caprices of the moneyed, over the very survival of those without it. Gaps between rich and poor, the haves and the have-nots, the overdeveloped and underdeveloped regions, have grown exponentially. For example, the income gap between one-fifth of the world's people living in the richest countries and one-fifth in the poorest was 74 to 1 in 1997, up from 60 to one in 1990 and 30 to one in 1960 (UNDP, 1999, p. 31).

Inequality has also been rising within many countries since the early 1980s. In China, disparities are widening between the thriving export-oriented coastal zones and the provinces, especially those in the interior (World Bank, 1997): the human poverty index is just under 20 percent in coastal provinces, but more than 50 percent in inland Guizhou (UNDP, 1999, p. 3). In 1995-96, while local education expenditure in China's 8 western provinces was 3.37 percent of GDP on average, it was 1.98 percent in the coastal region. The average per capita education expenditure from 1988 to 1996 was 67.59 *yuan* in the inland, and 210.02 *yuan* in major cities.

China's illiterate population remains huge. By 1994, 22.5 percent of the 430 million rural people were either real or functional illiterates. The percentages of those with primary (years 7-12), junior secondary (years 13-15) and senior secondary (16-18) education were, respectively, 38.67, 31.43 and 6.81 percent. Over 60 percent of the rural population had an education lower than six years primary education, concentrating especially in the impoverished areas largely in the far west (Zhang, 1998, pp. 47-49). Under such a scenario, it is not surprising that higher education development is poor quantitatively and qualitatively in China's less developed areas.

Despite recent spectacular economic development, 6.7 percent of the Chinese still live in poverty. They can be found in most parts of the

country covering 25 of China's 31 provinces, concentrating more in far west, where agricultural economy still dominates. In Guizhou, for example, agricultural products occupy 30.1 percent of its GDP, and 35.7 percent of the population live in poverty. Similarly, Qinghai's agriculture weighs 23.6 percent of its GDP (Zhang, 1998, pp. 5-6). The average per capita annual income in such areas was 1,000 *yuan* (about 123 US dollars) in the mid-1990s. It was only 248 *yuan* in one county in Guizhou. While the county's financial income was 6,280,000 *yuan*, its budget reached 48,490,000 *yuan* (Zhang, 1998, pp. 92-93). Within such underdeveloped regional economies, the best possible local investments in education are often not good enough.

University fee policy, then, does not favor those living in remote areas with little money. As higher education is getting more and more expensive, the gap of higher education opportunities between the poor and the developed areas is rapidly widening. Rising tuition fees have substantially increased the difficulties of poorer families in sending their children to universities. A survey shows that many Shanghai parents are budgeting well over an annual amount of 10,000 *yuan* for their child's university education based on the current expenditure (*China Education Daily*, March 28, 2001, p. 1). Such an amount is incredibly astronomical to many families in China's vast less developed areas. Even for those already enrolled, it is extremely difficult to finish their university education.

The widening regional gap most affects impoverished areas, which are often minority regions too. For instance, by the end of 2000, the number of students studying in higher education institutions in Tibet was 5400, whereas in 2001, 38.8 percent of the 18-22 age cohorts went to universities in Shanghai, and 70 percent of senior secondary school graduates went directly to universities in Beijing. Regional imbalance becomes even more serious as the market economy further settles in China. Nonetheless, social justice issues are not the first priority of the current strategy for higher education development (Price, 1997). Such a policy orientation seems to be justified in an international context that central governments devolve authority to lower levels in the hierarchy to "pass the buck" (Bray and Borevskaya, 2001).

To make the situation in poorer areas worse, China is still practicing a discriminative university student admission policy, which gives preferences to students from major cities (*China Education Daily*, March 9, 2002, p. 1). Top institutions adopt a quota system and admission requirements that favor local students. Such a quota system has existed in China for

many years. Nowadays, as academic qualifications become more important in China's job market, this discriminative admission policy further widens the gap of receiving higher education in different regions (*South China Morning Post*, August 8, 2001, p. 3).

SCHOLARLY ADVANCEMENT WITHIN A MARGINALIZED RANGE

China was once an ancient giant in world science and technology. In the contemporary international knowledge system, however, China has been much marginalized. The overall picture of China's research strength in the system is mixed, [a "giant periphery" as Altbach (1998, pp. 189-197) has referred to]. While China is catching up rapidly with the world cutting-edge in some academic fields with an increasing number of internationally active scholars, its scholarship is still largely unrecognized, and far from integrated with the world mainstream.

Government-Initiated Projects

To catch up with and surpass the world's advanced levels has long been the fundamental theme in many spheres of China's modernization. It is neither a wholly novel, nor primarily contemporary social phenomenon in the higher education sector. Nevertheless, there are striking novelties in the officially defined target to build up world-class universities in China. "World-class university" has already become a buzzword within the past five years or so. On the campuses of major Chinese universities, pictures and slogans on this theme can hardly be missed at university main entrances, on the wall of major buildings, and even along crane arms at university construction sites. Such endeavors have been legitimized since President Jiang Ze-min's calls to have quite a few first-rate universities of international advanced level in his speech at the conference celebrating Peking University's centenary. Towards this end, Chinese governments at different levels have taken various administrative and financial initiatives. Among them, the most prominent are the "211 Project" and the plan to build up key national bases for humanities and social sciences research in regular higher education institutions.

The "211 Project"

The "211 Project" is the Chinese government's recent endeavor aimed at strengthening about 100 institutions of higher education and key

disciplinary areas as a national priority for the 21st century. It is an important measure to facilitate the development of higher education in the context of the country's advancement in social and economic fields (Christiansen, 1996). Primarily aiming at training high-level professional manpower to implement the national strategy for social and economic development, the project consists of three major components for development: the overall institutional capacity, key disciplinary areas, and public service systems of higher education (*China Education Daily*, December 7, 2001, pp. 2-3).

The implementation mode of the "211 Project" deserves our particular attention in understanding China's march toward mass higher education. The project is mainly oriented to economic development. Its focus has been almost exclusively on research-intensive universities. A small number of key disciplinary areas and other development projects are accommodated in other institutions of higher learning. The project is under the direct guidance of the Central Committee of the CCP and the State Council, and with the coordination of the State Planning Commission, and the Ministries of Education and Finance.

The funding required for the project can be generated through a co-financing mechanism involving the State, local governments and higher educational institutions. In line with the existing administrative system of higher education, funding mainly comes from the central departments and the local governments that have the jurisdiction over the universities concerned.

So far, 98 institutions of higher learning nationwide have gone through sector preliminary examination as scheduled; 602 key disciplinary areas have been identified; among them, 62 (10.1 percent) are from social sciences and humanities, 57 (9.5 percent) economics and law, 89 (15 percent) basic science, 42 (7 percent) environmental resources, 255 (42.4 percent) industry and high-tech, 66 (10.6 percent) medicine and nursing, and 31 (5.1 percent) from agriculture. The overall investment during the Ninth Five-Year Plan was 110.37 billion *yuan*. In addition, 73.32 billion *yuan* complimentary investment on construction and facilities was raised. By August 31, 2000, the actual investment reached 150 billion *yuan* (*China Education Daily*, February 8, 2001, p. 1).

Building up Key National Bases for Humanities and Social Sciences Research

When confronted with an international context, one urgent task for Chinese universities is to improve their levels of internationalization in the

humanities and social sciences. Due to the varied ideologies, paradigms, and discourses inherent in these fields and the high dependency on language to convey their meanings, dialogue with the international community is needed. The integration of social studies with the international community has attracted the government's attention with its move to restructure research strengths and infrastructure in humanities and social sciences.

In June 1999, the Ministry of Education issued the *Plan to Build up Key National Bases for Humanities and Social Sciences Research in Regular Higher Education Institutions* (Putong Gaodeng Xuexiao Renwen Shehui Kexue Zhongdian Yanjiu Jidi Jianshe Jihua). The plan included a selection of about 100 leading research centers in the country, chosen for their relevance to economic and social development and to higher education reform; provision of spadework for future development by reforming the existing administration system — including initiating major projects, allocating funds and grants, and supervision; and improvement of the overall research capacity of these listed centers to cutting-edge level, and thus ensuring a substantial international reputation.

To achieve these targets, three stages have been scheduled to implement the plan. Step one (1999–2000) focused exclusively on identifying 103 centers of research excellence. Step two (2001–05) includes comprehensive policy implementation. This stage aims in particular to ensure that the overall research strength of the selected centers achieves leading level within China by 2005. Those failing to do so will be excluded from the plan, and new centers with recent excellent performance in similar areas will be added. The final stage will start in 2006.

The plan has been in operation for two years and has yielded intense competition among universities, which is welcomed by the Chinese government. This echoes the global paradigm shift in public management, as manifested by a more individualistic, competitive, and entrepreneurial approach (Robertson and Dale, 2000). According to the Ministry of Education, such competition helps use financial and human resources at different levels where they are needed most. Those 103 listed centers are spread across 40 universities, of which 27 are under direct administration of the Ministry, and 13 are under other ministries and provincial governments.

The plan echoes an international trend in educational restructuring: ongoing devolution in finance and administration with increasing central government influence in curricula (O'Donoghue and Dimmock, 1998). This major initiative to promote research deserves our particular attention

as China's scholars in the humanities and social sciences have achieved far less international visibility than their colleagues in engineering and the natural sciences. The humanities and social sciences, however, serve as a more accurate barometer of the extent of China's progress in the internationalization of higher education (Yang, 2003).

Achievements, Burden and the Road Ahead

Within the past two decades, China has had a great leap forward to a substantial role in the hierarchy of international scientific powers, competitive with Spain, Switzerland, and Sweden by the late 1990s (Zhong, 1998, pp. 61-62). In 2001, there were altogether 1,399,776 sci-tech theses published in the world. Among them, 49,678 were produced by scientists from mainland China, an increase by 7.6 percent ranking the world 8th (*People's Daily*, February 1, 2002, p. 1).

China's edge is in the quality of its students. Chinese universities draw from a huge gene pool. Some seven million Chinese apply for places annually. Every year, about 20,000 students from mainland China enter top-notch overseas universities. Increasingly they return home to help build a modern economy, a phenomenon the government is trying to foster.

Many Chinese universities target the world's leading Chinese researchers to attract them back to their institutions. Internationally active scholars are not rare to find. With such considerable achievements, it is worth asking how China's higher education institutions rate against their international rivals. *Asiaweek's* (2002, p. 2) recent ranking reveals that in research and international recognition, Chinese universities are lagging behind some of their Asian counterparts, not to mention how they compare to world leading universities in industrialized countries.

Life science as one of the most important part of the contemporary science and technology can serve here as a stark example. To date, Chinese scholars have produced very few research articles in the leading journals in this field. Reasons are many, including their lack of English language proficiency, and the likely prejudices of Western editors. It is, however, the low-level research capacity and the shortage of creative thinking that are to blame. In 2000, *Nature* published 205 articles from Germany, 105 from Japan, 62 from Switzerland, 49 from Australia, 35 from Sweden, 17 from Austria, and 7 from China. *Science* published 71 articles from Japan, and 7 from China. In 2001, five mainland and three Hong Kong scholars published articles in the most prestigious life science journals: three

appeared with *Science*, three in *Nature Genetics*, and one in *Nature Neuroscience* (Rao, 2002, p. 91).

These numbers show that on one hand researchers from mainland China have made encouraging achievements, which are closely related to China's recent economic growth and the increasing investment in science, technology, and education. The fact that most of these articles came from a handful of institutions shows the direct association with various Chinese government-initiated projects to promote knowledge innovations. On the other hand, these numbers demonstrate that catching up with the world cutting-edges in science and technology remains an arduous task, and arguably, except for a few special cases, a far dream in present China.

Within China, the situation is highly differentiated. Internal differentiation among various disciplines demands attention. The aforementioned achievement is largely confined to natural sciences and technology. China's humanities and social sciences scholars have not achieved the emerging visibility of their natural sciences and engineering peers in the international community. The numbers of publications reported by international citation indices, which have become increasingly important in the assessment of research at institutional, departmental, and individual levels, however, have not been popularly employed as an effective means in the social sciences precisely because too few publications produced by Chinese social scientists appear in internationally reputable journals (Yang, 2003).

Within the current framework of international knowledge system, any knowledge that does not belong within the system is not knowledge, simply because it is not circulated internationally. This explains why indigenous Chinese scholarship is not treated seriously. To avoid being marginalized yields the following dilemma for Chinese scholars: on one hand there is no effective way to avoid marginalization except by joining the world community which leads to reliance on foreign scholars and returned students in the process of knowledge transfer and intellectual contacts; on the other hand, this yields increased dependence on the international knowledge network, and in some ways reinforces China's peripheral status, by emphasizing the mainstream international knowledge (Altbach, 1998), at the expense of indigenous forms of scholarship and understanding.

Chinese researchers in the social sciences and humanities, in particular, face a challenge of paradigm shifts from the traditional Chinese to the most internationally accepted Western. This does not mean negation

of Chinese traditions; but even the further development of Chinese research traditions should be on the grounds of a mastery of the Western tradition too (Yang, 2003). The transition will certainly not be easy. Indeed the difficulty has caused some to flinch (*The Australian*, January 23, 2002, p. 29).

FINANCIAL STRINGENCY WITH HEAVY INVESTMENTS

Under the impact of globalizing market forces, higher education is being asked to be more accountable for how its diminishing portion of public financial support is spent (Altbach and Peterson, 1999). A major change has occurred in the evaluation of university performance, with a government initiative toward a more competitive allocation of operation funds (Taylor *et al.*, 1998). Parallel to financial cuts is the move to privatization (Smolicz, 2000, p. 122).

China's higher education cannot immunize itself against the international context. While investment still relies heavily on national funds, diversification via donations from society, enterprises, public institutions, and individuals is being encouraged. Universities are increasingly urged to cooperate with the private sector, and respond to market needs. Students are required to pay their tuition fees. Universities are asked to raise funds from various income producing sources (Bray, 1998), and to generate their revenues as shown in Table 8.7. The professoriate is seen as a means to raise income for academic institutions. The need for universities to operate profit-making enterprises is increasing.

Table 8.7: Funding Sources for Regular Higher Education Institutions, 1998–2001 (hundred million Yuan)

Year	1998	1999	2000	2001	2001–1998 increase (times)
1. Total	544.8	704.2	904.2	1,166.6	2.1
Percentages	100.0	100.0	100.0	100.0	
2. Government investments	342.6	429.5	512.7	613.3	1.8
Percentages	62.9	61.0	56.7	52.6	–0.1
3. Revenues generated by higher institutions	202.2	274.7	391.7	553.3	2.7
Percentages	37.1	39.0	43.3	47.4	0.1

Unlike many countries, however, China is now investing heavily on higher education in one sense. This has taken two forms: one is through national key programs, as shown by the above-mentioned “211 Project” and the plan to build up key research centers in the humanities and social sciences. There are some other governmental initiatives including the 863 High-Tech Programs and the National Natural Sciences Fund. Many ministerial and provincial/city governments also have their projects and grants to promote research and development. A substantial proportion of such resource goes to universities.

The other form is its highly discriminative policy of focusing its investment on a handful of elite universities. In 1999, Peking and Tsinghua Universities each received an extra \$36 million. For the current year, each will have twice that amount on top of their regular \$14.5 million allotments (*South China Morning Post*, August 1, 2001, pp. 2-3). The extra resources are meant for new research spending, special stipends, and housing. Such special allotments, however, are generally confined hierarchically to the prestigious universities, and geographically to those institutions in affluent coastal areas.

It is now a common practice for many universities to pay selected professors extra stipends every month, with those setting up laboratories getting more. Universities often have to be in partnership with the business world to offer better welfare for their members, for instance, building apartment units for teachers and students. All of this requires resources. The government wants universities to shoulder half of their budget. The gap will have to be filled by private-sector endowments, consultancies and commercial spin-offs. Such a task is only achievable for the more prestigious universities as they have a strong research capacity to attract investment from the industry.

The story of provincial universities, which form the mainstay of China’s higher education, is totally different. One direct effect of the massive enrollment increment is the huge gap between student demands and the actual operating conditions in many universities. The continuous increase of student numbers for more than a decade, particularly since 1999 has put great pressure for funding. Yet funding increase lags far behind, leaving most Chinese universities with overloading operation. Student dormitories are often dark and worn down by years. Many universities have daily problems with water, gas, and electricity facilities, let alone other demands such as library collection, laboratory facilities, and the Internet access. Under such scenario, education quality has to be compromised.

Another effect is the increasing differentiation within higher education sector. First is among different universities, while Peking and Tsinghua Universities are in great delight to receive the special favor from the central government, other equally qualified universities feel they are given the cold shoulder. Nanjing University, for instance, while boasting its top ranking for recent years, has not been equally fortunate in winning the privilege from the national government. Its president even resigned in protest.

Another form of internal differentiation is the regional differences. As shown above, China's imbalanced regional development has been a social problem for thousands of years. It is being aggravated, rather than reduced, by the current transformation from the planned to a market economy, and by the shift of regional development policy since 1978. Higher education development, as both a stimulus for and an outcome of change, differs from region to region due to very different socio-economic conditions and tasks. Regional financial disparity has an evident effect on universities. Higher education institutions in better-developed areas are much more likely to receive significant assistance and investment from various organizations, particularly the private sector. Institutions in poorer areas, by contrast, often feel helpless.

A further element of differentiation is across disciplines. Different financial situations have provided various departments even within one institution with very different bases for their future developments. Overall, the process of increasing integration with society has seen techno-sciences make considerable progress. This has led to new problems within various faculties even departments. In some faculties, a criterion for performance assessment with the central focus on economic benefits has been implemented. This is a dangerous, if not mistaken, conception, and stands in direct conflict with the nature of a university, whose task is "the methodical discovery and the teaching of truths about serious and important things" (Shils, 1997, p. 3). It also undermines the university as an integrated whole and causes tensions among its staff.

CONCLUDING REMARKS

Despite some concerns for the modes of implementation and specific timing, the move toward massification of higher education has been well acclaimed in China, with pushes from below and pulls from above.

China's trend toward the massification of higher education is neither a simple continuity of its unique traditional higher learning, nor a wholesale transplant of foreign experience. While disparities are obvious, China's initial practices have demonstrated some similarities with the practice of other nations.

It is then necessarily appropriate to set Chinese practice in the international context. Chinese higher education institutions are on the horns of a dilemma: while they are playing a crucial role in China's economic and social development, they still find themselves at a disadvantage in the international knowledge network. The problems of looking outward and inward at the same time are substantial, particularly when combined with immense pressures to contribute directly to national development and to participate in the international system (Altbach, 1998). Such a predicament is felt on a daily basis, especially by China's major universities within the preliminary stage of massification of higher education.

Higher learning in China has traditionally been the privilege of the elite, a phenomenon often referred to as *xuezaiguanfu*. Only rarely was it successfully used by the few talented with lower middle- and working-class origins to gain infiltration into high society. In this regard, the ongoing massification of higher education in China is historically significant in providing increasing Chinese population with access to education at an unprecedented level, and therefore with more life choices.

Chinese preparation for a take-off in the massification of its higher education system reminds us of the often-neglected fact that higher education is by its very nature an elitist system. Only a few selected in a given population have access to the pinnacle of any higher education system. Even in mass higher education systems, there is a high degree of selectivity that ensures that access to the top institutions in the hierarchy of institutional forms is controlled, and possible only to elite performers, as demonstrated persuasively by Brown and Bok (1998), using the admission to highly select American four-year colleges as an example. Without exception in the Chinese higher education system, while the participation rate is becoming higher, institutional differentiation is increasing.

As knowledge production moves out of the university into the larger society, so the society's diverse values move in. The boundaries of the university are increasingly blurred by both tendencies (Gibbon, 1998). The total mission of higher education has become fuzzier and more diverse, more difficult to define and defend. Universities increasingly serve a growing variety of functions from the most abstract research to the most

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utilitarian training force. The socio-economic significance of mass higher education is therefore increasingly prominent. One pressing issue in contemporary China is that there is a determinist element in Chinese higher education that puts a particular model of institution at the top and creates conditions that offer almost insuperable barriers to lower ranked institutions emulating the higher ranked. This is aggravated by the still highly centralized administration. The question that needs to be asked of the system is how do the institutions with less social prestige define a role for themselves that allows them to focus on achievable goals.

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