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**EXPANSION OF HIGHER EDUCATION IN CHINA:
CHALLENGES AND IMPLICATIONS**

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Summary

1. China has seen an unprecedented expansion in its higher education (HE) sector in the last decade. Total enrolment, for instance, reached 7.3 million in 2006, 3.5 times higher than in 1997. By 2006, total enrolment at China's HE institutions had risen to as high as 25 million with the gross enrolment rate reaching 22% compared with only 3.4% in 1990. This development indicates that higher education in China has transformed from an elitist to a mass system.
2. The expansion involved structural adjustments of regular and adult higher education programmes including short-cycle and normal courses at undergraduate level as well as master's and doctoral degree programmes. For instance, the balance between regular and adult education has tilted towards regular higher education as adult education enrolment has been declining in both absolute and relative terms since 2002. In contrast to the high and even growth in undergraduate and postgraduate courses, the enrolment of short-cycle courses has expanded at only half the rate of the former.
3. The rapid development of the HE sector in the last decade has come about as a result of government reforms. The first measure taken was commercialisation, requiring students or parents to share the cost of higher education with the state. The second reform measure was decentralisation, which saw the central government transferring control of more than 90% of HE institutions to local authorities. The third involved enlarging enrolment through developing new university campuses. The average enrolment at regular HE institutions reached 14,000 in 2006 compared with 4000 in 1987. The fourth was the introduction of non-state/private (NSP or *minban*) institutions, which account for nearly 20% of HE students in the country.
4. The expansion of the HE sector has brought many challenges to the Chinese government, HE providers, parents and students, the biggest being the challenge to provide enough jobs for almost 4 million new graduates annually. The second lies in the decline in HE quality due to limited HE resources and rapidly rising student-teacher ratios. Furthermore, increasing tuition fees and shrinking funds from the government have made access to HE increasingly difficult for rural and urban poor families. Intensifying competition in the labour market and the impact of *guanxi* (referring to a person's network of relationships) have also added to the woes of the socially disadvantaged.
5. Rapid economic growth in China and the challenges facing the country's HE system have opened up opportunities for foreign providers of higher education. The latest evidence indicates that demand to study abroad is still increasing in China despite a slowdown in the domestic HE sector. There is ample room for foreigners to help improve the quality of HE by jointly organising research and teaching with Chinese counterparts. As Chinese Premier Wen Jiabao pointed out: developing the economy is the task for now, promoting education is the task to prepare for the future.

Expansion of higher education in China: challenges and implications

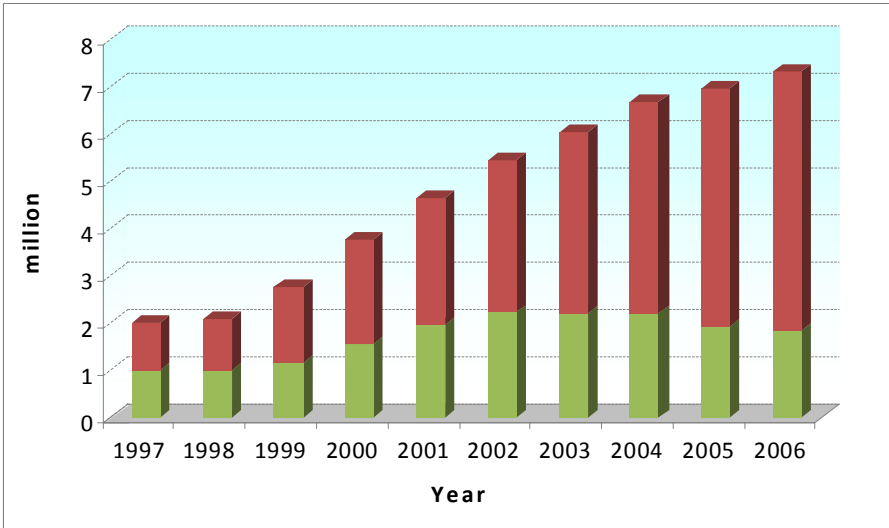
Bin Wu and Yongnian Zheng¹

HE Expansion in China

- 1.1 Before China began its reform and opening up in the late 1970s, China's higher education system was heavily influenced by the Soviet model. All HE resources as well as matters relating to student enrolment and employment were controlled under the highly centralised planned system. Very few Chinese youths (amounting to less than 5%) had access to HE. Tuition and accommodation fees were waived for all matriculated students. Students majoring in some subjects, such as agriculture, forestry, geology, and teacher training, as well as those in master's and doctoral degree programmes, also received grants from the state to help cover their living expenses. All higher education institutes (HEIs) were funded and run by government agencies such as the Ministry of Education and agencies in charge of steel and the railway. Jobs were also guaranteed by central or local government agencies for students who completed designated courses.
- 1.2 The old system was not fundamentally changed till the late 1990s. In 1999, the Chinese government decided to expand the HE sector to meet demand for graduates stemming from a rapidly growing economy; cater to parents who want more HE opportunities for their children; alleviate the problem of urban unemployment; and to promote the development and utilisation of China's human resources.
- 1.3 Figure 1 illustrates the dynamics of China's HE sector. There was an unusually high rate of growth between 1999 and 2003. Total undergraduate enrolment jumped from over 2 million in 1998 to 6 million in 2003. That trend of growth continued at a net increase of 1 million annually between 2003 and 2006 despite a slowdown in the growth rate, driven by the expansion of regular HE institutions. Total enrolment has increased more than sevenfold since 1998. Enrolment at adult HE institutions doubled between 1998 and 2002, thereafter keeping constant at 2 million for a while before falling to less than 2 million in recent years.

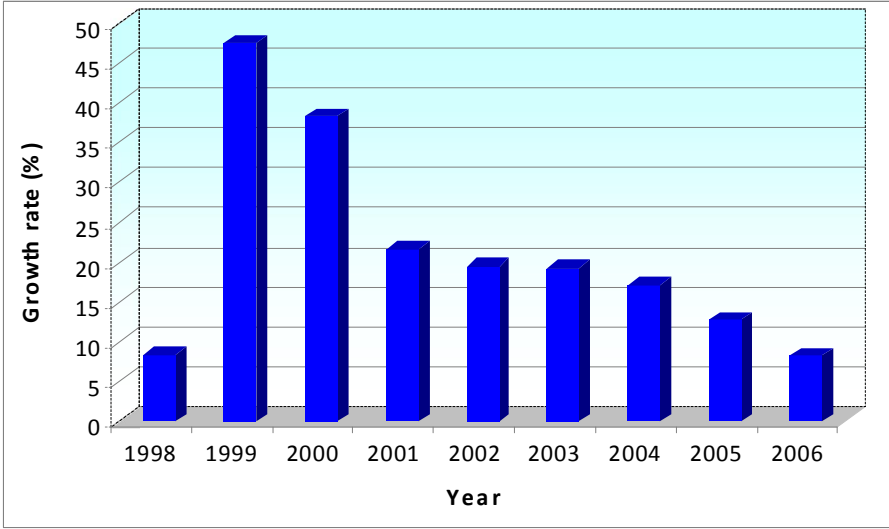
¹ Dr. Bin Wu is Senior Research Fellow, and Professor Yongnian Zheng is Head of Research at China Policy Institute, University of Nottingham.

Fig 1 Expansion in China's undergraduate entrants²



1.4 Figure 2 provides a closer look at the growth rate of undergraduate entrants to regular HE institutions. After high rates of growth between 1999 and 2003, the rate of increase in entrants in this sector returned to the rate of 1998.

Fig 2 Growth rate of undergraduate entrants in regular HEIs



1.5 The expansion of students in regular HE institutions has stimulated the increase in postgraduate candidates. Table 1 shows the size and growth rate of postgraduate education in China. The rate of increase in doctoral students in China has tapered off since 2003 after recording high rates in the preceding five years. A similar pattern has also been observed in the increase in master's students.

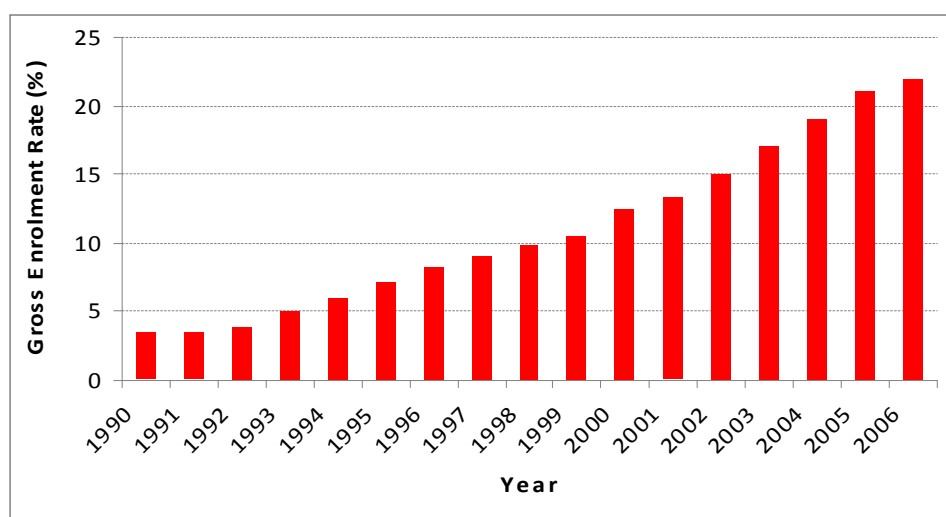
² All graphs and tables in this paper, except where mentioned otherwise, are calculated based on official statistical data available online at: <http://www.moe.gov.cn/>

Table 1 Growth of postgraduate entrants by degree (thousands)

Degree	1998	1999	2000	2001	2002	2003	2004	2005	2006	2006/1998
Doctoral	15.0	19.9	25.1	32.1	38.4	48.7	53.3	54.8	56	3.74
Growth (%)	--	33.0	26.1	27.9	19.6	26.8	9.4	2.8	2.2	--
Master's	57.6	72.3	103.4	133.1	164.3	220.2	273	310	342	5.94
Growth (%)	--	25.6	43.0	28.7	23.4	34.0	24.0	13.6	10.3	--

1.6 The rapid expansion of the HE sector in China has fundamentally transformed the country's higher education system from elitist to mass. According to official statistics, the proportion of 18 to 22 year olds enrolled in HE, or gross enrolment rate, was 3.4% in 1990. The figure rose to 9.8% in 1998. Due to the expansion of HE institutions, gross enrolment doubled from 12.3 million in 2000 to 25 million in 2006, with the gross enrolment rate reaching 22%, as shown in Figure 3.

Fig 3 Growth of gross enrolment rate of HE in China



1.7 The HE sector's expansion in China has provided an opportunity for adjustments to be made to the relationship between short-cycle courses, normal undergraduate courses and postgraduate courses. Table 2 shows a balance of different levels for all courses except short-cycle, which have expanded at a much slower pace compared to normal courses. As a result, the enrolment of short-cycle courses is even lower than that of normal degree courses in 2006. The decline in weighting of short-cycle students in China's HE institutions is partly due to the falling share of adult HE institutions in the national HE sector (as shown in Figure 1) and partly due to the structural adjustment of courses within adult HE institutions, which led to a drop in enrolment of short-cycle courses from 90% in 1997 to 58% in 2006. But, interestingly, the share of short-cycle courses in regular HE institutions increased from 42% to 54% over the same period. This suggests there may be an overlap in the structures of normal and short-cycle courses offered by regular and adult HE institutions.

Table 2 Structural adjustment of new entrants in all HE institutions

Level	2006		1997		2006/1997
	Thousands	Ratios	Thousands	Ratios	
Doctoral	208	1	13	1	16.1
Master's	897	4.3	51	3.9	17.6
Normal	11,554	55.5	675	52.3	17.1
Short-cycle	11,084	53.3	1,329	102.9	8.3

1.8 The Chinese government aims to maintain the growth of the HE sector through 2010 when gross enrolment is expected to reach 30 million, representing a gross enrolment rate of 25%. Table 3 shows the growth structure and development objectives of China's HE sector. Considering the downward trend of adult HE institutions shown in Figure 1, the Chinese government faces a big challenge in achieving its goals for the adult education sector.

Table 3 Growth and trends of China HE institutions (millions)

Division	2000	2005	2010	2000-05	2005-10	
All levels	12.3	23	30	10.7	7	
Undergraduate	Regular	5.56	15.62	30	10.06	7
	Adult	3.54	4.36	6	0.82	1.64
Postgraduates	0.30	0.98	1.30	0.68	0.32	
Gross enrolment rate (%)	12.5	21	25	8.5	4	

HE Reform

2.1 The unprecedented growth of China's HE in the last decade would not have taken place had reforms not been introduced. So far, reform measures have included commercialisation, decentralisation of HE control, and expansion of enrolment and development of non-state/private institutions.

2.2 The first measure is what China calls *marketisation* or *commercialisation*. A lack of funding had hugely impeded the development of China's HE sector in the past. Today, total government expenditure on education, including HE, accounts for less than 3% of national GDP (MOE 2007). To counter this problem, Chinese parents have been asked to share the cost of their children's higher education, which means that they have to pay tuition fees. Table 4 shows the increase in tuition fees approved by the central government. Since 1996, tuition fees have risen faster than the incomes of both rural and urban residents.

Table 4 Growth of urban household net income and tuition fees in HE sector (annual *yuan*/person)

	1989	1995	1996	1997	1998	1999	2000	2000/1996
Tuition	200	500	1500	2500	3500	4500	5000	3.33
Urban income	1370	4283	4839	5160	5425	5854	6280	1.30
Rural income	602	1578	1926	2090	2162	2210	2253	1.17

2.3 It is worth noting that the figures in Table 4 only refer to guidelines for regular HE institutions set by the central government. In practice, actual costs are usually much higher than those suggested by the government guidelines. In addition to tuition fees, students and their parents have to bear other fees such as living expenses which cost about the same as tuition fees. As such, putting a child through university could exhaust the entire income of an urban family of three people. It is therefore impossible for a rural family to support a university student. Due to protests against the rise of tuition fees, the central government in recent years had to freeze further fee hikes in regular HE institutions. Fees are also charged to students in postgraduate programmes. According to a list published by the *China Youth Daily* on 4 December 2007, fees of master's programmes charged by a famous university ranged from 21,000 *yuan* for courses in literature and social sciences and 24,000 *yuan* for science and engineering to 36,000 *yuan* for arts.

2.4 Undergraduates have been choosing their fields of study according to the demands of the labour market. As shown in Table 5, while engineering remains the top choice of study, administration studies has seen a rapid increase in popularity, with nearly 20% of entrants selecting it as their course of study, putting it in second place. Literature including foreign languages as well as medicine continued to attract entrants. Due to increased funding from the government and the attraction of job security in the teaching sector, education has become an increasingly attractive course of study.

Table 5 Distribution of entrants in regular HE institutions by subject (%)

Subject	1997	2001	2006	Rank
Philosophy	0.2	0.1	0.0	
Economics	15.3	5.2	4.9	
Law	4.2	5.5	3.6	
Education	4.7	5.9	6.1	5
Literature	14.3	15.6	15.0	3
History	1.6	0.6	0.3	
Science	11.0	9.6	5.2	6
Engineering	38.1	33.3	36.5	1
Agriculture	3.6	2.3	1.8	
Medicine	7.0	6.5	7.0	4
Administrators	--	15.5	19.7	2
Total	100	100	100	100

2.5A second major reform was the redistribution of management responsibility from central to local government. In the past, many universities within a province were funded and run by different central ministries in charge of industries including education, textiles and railway. As the economy became increasingly market-oriented, those traditional vertical relationships were broken down or greatly weakened when many industrial ministries ceased to exist or were restructured. Furthermore, universities are now becoming increasingly dependent on development of their local economies and labour markets for graduate absorption. To adapt to the economic transition and optimise HE resources, the central government began to reorganise the HE system by merging HE institutions within cities; emphasising the role of HE in local economic development; and transferring management power of many universities from the central government to local authorities. Such measures have provided local authorities with greater incentives to support and participate in the HE reform. With respect to the redistribution of management power, as Table 6 shows, 94% of HE institutions, accounting for 92% of total national enrolment, were managed by local authorities in 2006, compared with 66% and 61% respectively in 1997 before the reform started.

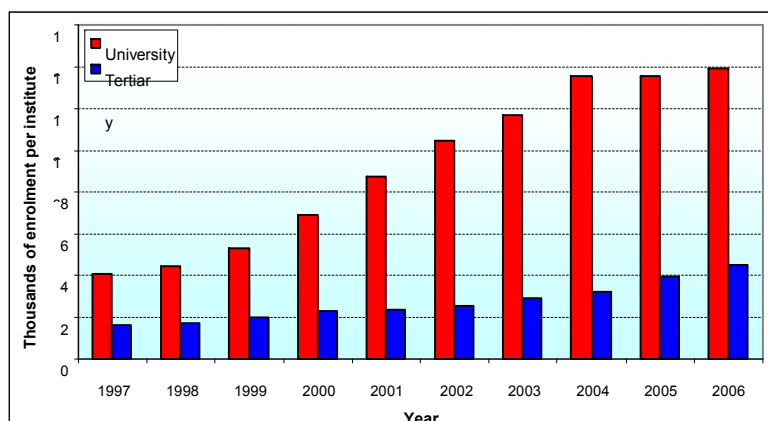
Table 6 Change in central and local management of regular HE institutions

Category	Item	1997		2006	
		Central	Local	Central	Local
HEIs	No.	345	675	111	1756
	%	33.8	66.2	5.9	94.1
Students	1000	395	605	422	5,038
	%	39.5	60.5	7.7	92.3

Note: local including non-state HEIs

2.6The third major reform aimed to expand enrolment at each HE institution by developing new university campuses. On average, the enrolment at each regular HE institution increased from 3,112 in 1997 to 8,148 in 2006. There are, however, differences in terms of expansion between universities and tertiary institutes. As shown in Figure 4, universities registered bigger increases in enrolment, which reached 14,000 on average.

Fig 4 Expansion of regular HE institutions in the last decade



2.7 After the Hu Jintao-Wen Jiabao team took over the leadership in 2002, the nature and specialisation of regular HE institutions was adjusted by the new administration. Table 7 shows the structural changes in regular HE institutions between 1997 and 2006. While sciences and technology (mainly engineering- and ICT-related subjects) remain the top areas of specialisation, the most distinctive change is seen in the development of comprehensive universities, which have been set up to meet the needs of local economic and social development. New comprehensive universities are formed from the restructuring of traditional polytechnic universities or colleges and the enlargement of teacher training universities or colleges. This development has spurred a decline in the number of teacher training institutes over the last decade despite the increasing popularity of the teaching occupation amongst students.

Table 7 Structural adjustment of regular HE institutions in terms of specialisation

Type	1997	2006	2006-1997	Rank
Comprehensive	74	417	343	2
Sciences & Technology	278	666	388	1
Agriculture & Forestry	60	93	33	
Medicine & Pharmacy	122	128	6	
Teacher Training	232	178	-54	
Language & Literature	15	36	21	
Finance & Economics	76	172	96	3
Political Science & Law	26	67	41	
Physical Education	14	27	13	
Art	30	68	38	
Others	93	15	-78	
Total	1020	1867	847	--

2.8 The most significant change is seen in the introduction of non-state/private (or NSP, *minban*) HE institutions. The development of this sector is still at an early stage. At present, there are three types of NSP: NSP universities, independent colleges, and other NSP institutes. NSP universities originated from the merging of universities, which resulted in teaching and administrative staff redundancies in the late 1990s. Increasing demand for higher education and the introduction of tuition fees in the HE sector created incentives for regular HE institutions to set up new universities with partners to accommodate the redundant personnel. Such initiatives were subsequently approved by the central government and a law promoting non-state/private education was issued. According to official statistics, the number of NSP universities increased from 173 in 2003 to 278 in 2006.

2.9 Alongside the development of NSP universities, independent colleges emerged out of well-established universities, particularly the prestigious ones. Due to high demand for places in these universities, Chinese parents have been willing to pay the required high

tuition fees so that their children do not have to choose NSP universities. As a result, independent colleges have been set up to meet demand from low-scoring students and to generate more income for the institutions. Unlike regular HE institutions, NSP universities and independent colleges are able to set their own fee levels which are usually twice those set by the central government. In addition, many NSP institutions offer specialised higher education programmes geared towards the demand for adult training, certification, joint courses with foreign HE providers and so forth. As shown in Table 8, the number of NSP institutes accounts for 15% of the total number of HE institutions in China, while their undergraduate intake makes up 19% of the total.

Table 8 Division of regular HE institutions by type of provider (2006)

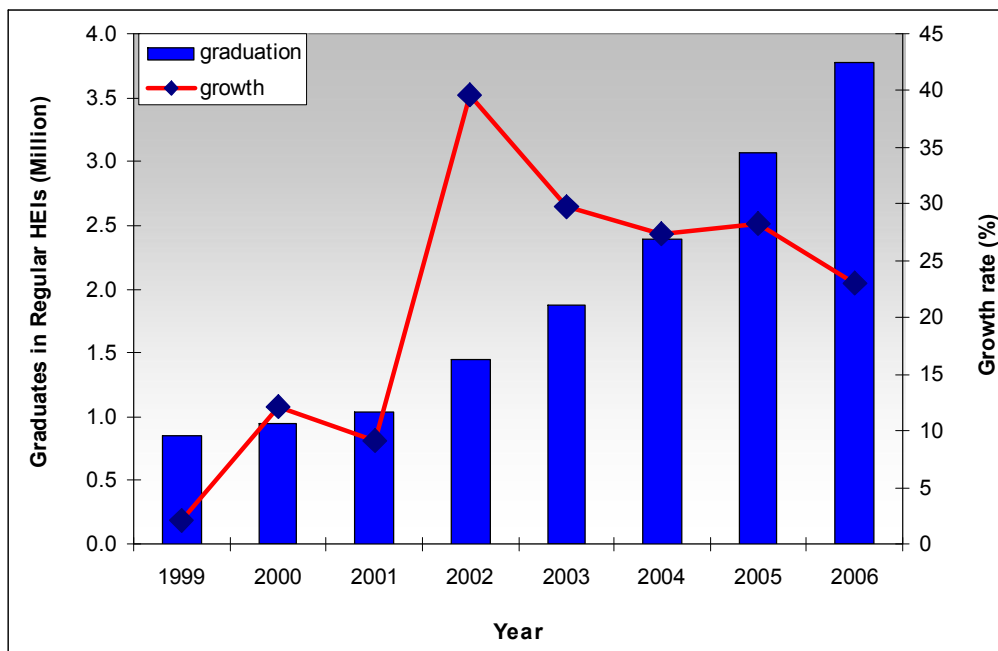
Category	Item	Central	Local	Non-state	Total
HEIs	No.	111	1480	276	1867
	%	5.9	79.3	14.8	100
Students	1000	422	4,029	1,009	5,460
	%	7.7	73.8	18.5	100

Challenges facing China's HE institutions

3.1 While the rapid expansion of China's HE institutions has greatly improved access to HE, there are challenging issues facing the Chinese government, HE providers, parents and students. These include graduate unemployment, decline in HE quality, unequal access to HE institutions, and decline in government funding.

3.2 The most direct and negative consequence is perhaps the rise of unemployment amongst graduates and postgraduates. Figure 5 illustrates the increase in graduates from regular HE institutions. The number of graduates has increased more than fourfold since 1999, reaching 3.8 million by 2006.

Fig 5 Increase in graduates from regular HEIs



3.3 Graduate unemployment is a serious issue in China. According to the Ministry of Education, 3.51 million graduates out of a total 4.95 million, or 71% of the cohort in 2007, have found a job by the end of September 2007 (MOE 26 October 2007). However, there have been reports that some HE institutions employ outrageous measures to force students to forge employment claims (*China Education and Research Network*, 12 April 2007).

3.4 Postgraduates also face difficulties in finding a job. Shanghai, for example, saw a 6.5% decrease in postgraduate study applications in 2007 after a decade-long increase. Moreover, amongst registered postgraduate students, about 20% were absent from the examinations in 2007, which was an increase of 5 percentage points from 2006 (*Xinhuanet*, 22 January 2007).

3.5 The decline in HE quality is also a major concern. The Chinese government has aimed to increase student-teacher ratios in order to raise the efficiency of HE resource utilisation and boost staff salaries and welfare. As shown in Table 9, compared with the unprecedented growth of the student population (Table 2), the increase in academic staff in regular HE institutions has been rather slow, rising from 404,000 in 1997 to more than 1 million in 2006. As a result, the student/teacher ratio rose from 9.8:1 to 17.9:1 in the same period.

Table 9 Increases in teachers and undergraduate students in regular HE institutions

Year	1997	2000	2003	2006
Teachers in total (000')	404.5	462.8	724.7	1076
Students per HEI	3112	5289	7143	8148
Students teacher ratio	9.8	16.3	17.0	17.9

3.6 The decline in HE quality is apparent based on a public opinion survey in 2006 (*China Education and Research Network*, 12 July 2006). When asked if China's HE system has been successful, only 2.1% of 4,802 respondents said "Yes," and 92.3% said "No." A major concern among the respondents was the decline in quality of this sector. One main factor leading to this quality decline is insufficient qualified teaching staff. A recent survey amongst teachers in HE institutions in Beijing found the average class size for undergraduate, master's and doctoral courses to be 83, 35 and 19 respectively. Meanwhile, 52% of the surveyed teachers thought there were "not enough teachers and the teaching load was too heavy." (GSE 2007)

3.7 Despite increasing access to higher education, the HE reform has nevertheless also contributed to a widening economic and social inequality. In terms of geographic distribution, national HE resources have tended to concentrate in a few major cities such as Beijing, Shanghai, Guangzhou, and Wuhan. For instance, 26% of China's top universities, numbering about 100 institutions, and 30% of central government-managed universities are located in Beijing where the gross HE enrolment rate exceeds 50%, which is more than double the national average. At the other end of the

spectrum, 42% of regular HE institutions are located in medium- or small-sized municipalities outside provincial capitals. They are marginalised due to a lack of central and provincial government support and limited financial capacity.

3.8 The introduction of tuition and miscellaneous fees has hindered access to HE for poor rural and urban families.

3.9 As competition intensifies in the labour market, family and social networks have become a crucial factor in getting a job after graduation. According to a survey among graduates in regular HE institutions carried out by Beijing University, 41.6% of respondents believe that social networks provide the most efficient job-seeking channel (*Xinhuanet*, 17 July 2006). Such a finding obviously has negative implications for those who come from rural and poor urban families.

3.10 There is widespread concern over the decline in government spending on the HE sector. In 2005, education accounted for only 2.82% of the government's expenditure (MOE, 2 February 2007), far below the 4% required under China's *Education Law*. Between 1998 and 2003, enrolment at regular HE institutions increased 2.3 times, while government funding increased only 1.4 times. Total revenue of HE institutions rose 1.8 times. This meant that government subsidies given to HE institutes declined from 14,902 *yuan* per student to 7,586 *yuan* while the total expenditure on each student dropped from 16,157 *yuan* to 15,833 *yuan* in the same time period (*China Education and Research Network*, 26 July 2006). Not only has the declining trend not reversed, it has also worsened. According to a recent government report, government financial subsidy to regular HE institutions dropped further from 5,553 *yuan* per student in 2004 to 5,376 *yuan* in 2005, representing a decline of 3.18%. The operating expenditure per student declined 2.65% from 2,297 *yuan* to 2,238 *yuan* in the same time period (MOE, 2 February 2007). In addition, rising debt has become a serious issue in China's HE sector. Debts and loans in this sector have risen to as high as 200 billion *yuan*, exceeding the total expenditure of regular HE institutions in China (*China Education and Research Network*, 26 July 2006).

Opportunities for foreign HE providers

4.1 After three decades of fast economic growth, China's economy shows no signs of slowing down. This has huge implications for the trend of Chinese students going abroad for higher education. A growing middle class and high career expectations are contributing to the increase in Chinese students studying abroad. As mentioned above, China faces tremendous challenges in developing its HE sector. On the other hand, China's challenges provide opportunities for foreign education providers. The uneven distribution of rapidly-growing wealth, increasingly high competition for employment, and a declining quality of higher education are likely to encourage Chinese students to study abroad.

4.2 Total Chinese student migrations rose to 134,000 in 2006, an increase of 12% on the year before. Some analysts have already begun to talk about a second wave of Chinese student migration. The *China Youth Daily* on 7 December 2007 published the findings of a survey conducted through the Internet on the attitude of undergraduate students in China towards studying abroad. Of 2,400 respondents,

- over 80% admitted that they were considering the possibility of studying abroad while only 16% said that they have never thought about it;
- 42% believed that the experience of studying abroad would increase their career prospects while 35% of the respondents did not think so;
- 66% believed that within five years or so, students returning from abroad would have better career opportunities than their local counterparts, while only 2.5% held the opposite view.
- The top 10 destinations for Chinese students are: USA, UK, France, Australia, Canada, Germany, Singapore, South Korea, Japan and New Zealand.

4.3 A survey conducted by Beijing University on the employment status of graduates and postgraduates nationwide (GSE, 2007) suggested that 2.9% of undergraduates, 4.9% of master's degree students and 10.7% of PhD candidates were prepared to continue their studies abroad. The percentage of undergraduate respondents who planned to go abroad increased slightly from 2.3% in 2005 (GSE 2005).

4.4 Foreign education providers can also help China in reforming its education system and improving the quality of its higher education. Due to China's Confucian heritage, the demand for quality HE continues to be high in China. Frustrated by the declining quality of higher education, Chinese parents are increasingly turning to foreign education providers in this globalised age.

4.5 Having found itself lagging far behind the rest of the world after years of isolation, China has exhibited a keen appetite to learn from other countries since opening up. The country needs new ideas and new forms of governance. Moreover, China's rapid economic development has been associated with major problems. The model adopted by the state so far has caused massive damage to the environment and lacks industrial innovation, casting doubt on the sustainability of China's development.

4.6 Education can and will play a unique role in making China's development sustainable and managing China's globalisation. As Premier Wen Jiabao has emphasized, "developing the economy is now, promoting education is the future." In a *China Daily* report on 7 December 2005, he was cited as saying, "If economic co-operation between our countries represents the present, cultural co-operation is the future." This forms the basis for cooperation between China and the rest of the world in the HE sector.