

**The Role of Public Universities in the Move to Mass Higher
Education: Some reflections on the experience of
Taiwan, Hong Kong and China**

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Introduction

The three higher education systems considered in this paper are all a part of what is often called “Greater China”. All three can be seen as inheritors of a Confucian tradition which placed great value on higher education through a civil service examination system going back to about 400 CE, and the recognition and use of talent in public administration. Yet the pathways they chose in moving to mass higher education were somewhat different.

Under American influence Taiwan developed a vibrant economy in the 1960s and 1970s, and with the end of martial law in 1987, a multi-party democratic system emerged. There was an early recognition of the need for higher education to support economic development, and by 1970, 14% of the age cohort were able to participate in higher education, a figure which increased to 18% in 1980 and 34% in 1990. While public higher education played a leading role in this expansion, the development of private institutions in response to social demand was a vital strategy, with 64% of all students enrolled in the private sector in 1970, 69% in 1980 and 73% in 1990.¹ This pattern is very similar to that of Japan and Korea, societies with a shared Confucian heritage and strong familial support for higher education.

Both Hong Kong and Mainland China faced the challenge of a move to mass higher education much later—in the late 1980s in the case of Hong Kong, and the mid-1990s in the case of Mainland China. In striking contrast to Taiwan, both elected to carry

out a dramatic and rapid expansion of the public higher education system, rather than depending upon the burgeoning of private institutions to achieve mass higher education. In 1981, Hong Kong had only two public universities and one polytechnic, and 2.2% of the age cohort enrolled in higher education². By 1991, there were seven publicly funded higher institutions, including a newly established University of Science and Technology, two polytechnics which had been upgraded to university status, and two formerly private institutions which had been given public status and support. An eighth institution was added in 1994. While 8.6% of the age cohort was enrolled in degree-level higher education in 1989, this figure increased to 17.2% in 1995, and has remained close to this level up to the present, while sub-degree enrollments have continued to increase.³

For Mainland China, the move to mass higher education has been even more dramatic, given the huge population. In 1990, China had a total enrolment of 2.1 million students in its public higher education system, with about 3.4% of the age cohort gaining access. By 1995 higher education enrolment had increased to 5.6 million, serving 7.2% of the age cohort, and by 2002 total enrolments reached 16 million, with 15% of the age cohort enrolled.⁴ This was achieved by a massive expansion of the public system of higher education, and by huge increases in the size of major public institutions, in some cases involving large scale mergers to achieve greater curricular breadth and teaching efficiency. While private higher education has been permitted to expand over this period, it has largely been at the sub-degree level, with only a handful of institutions recognized to offer degree programs.

In this paper we will focus on the experience of Hong Kong and Mainland China, and consider the differing reasons that led these two jurisdictions to give a parallel emphasis to public higher education in the massive expansion they undertook. The case of Taiwan stands as a comparative backdrop to the more recent experience of Hong Kong and Mainland China's transition to mass higher education. For political reasons there was virtually no consultation among these three societies, yet there are striking parallels in the policies chosen and development trajectories.

Taiwan has been completely isolated from both Hong Kong and Mainland China, and its early patterns of expansion depended heavily on the private sector, following the model of Japan and South Korea. After it achieved economic prosperity in the mid 1980s, however, considerable attention was given to the support of public higher education, and to its role in research for innovation in socio-political as well as economic areas of importance.

In the case of Hong Kong, the stimulus for growth and change came with the Joint Agreement of Britain and China in 1984, which affirmed the end of colonial rule in 1997. This was followed by the Basic Law passed in 1990, which guaranteed the continuation of Hong Kong's legal system for at least 50 years, under its status as a special administrative region of China. With this political change agenda, it became clear that higher education would need to expand in face of a potential brain drain of talent. There were also pressing needs for the whole population to be educationally prepared for work in one of the world's most advanced knowledge societies. After China's opening to the

world in 1978, the majority of HK's manufacturing jobs moved there, and a staggering 81.2% percent of GDP was coming from the service sector by 1993⁵, including sophisticated financial and management services, container shipping services, and many other service areas.

In the case of Mainland China, the major consideration affecting the expansion of public higher education has been an economic one. In 1978, when Deng Xiaoping declared a movement of opening up and reform in China, he set the goal of quadrupling China's gross economic product by the end of the century, and recognized that education would be a crucial factor in making this economic progress possible. While there had been considerable expansion of primary and secondary education during the decade of the Cultural Revolution (1966-1976), higher education had been severely curtailed. Thus the re-building of China's university system was a key priority of the new pragmatic leadership. With the help of more than 1.2 billion U.S. dollars in loans from The World Bank⁶, and a focused program of expansion and reorganization of the public higher education system, the dramatic expansion noted above has been achieved. There can be little doubt that China's remarkable economic achievements have owed a great deal to these educational policies. It is also interesting to note some hesitation in the move to mass higher education arising from concern as to how it would affect China's political stability, with the tragic events surrounding the student movement of 1989 leading to a short-lived constraint on enrolment expansion in the early 1990s⁷.

In his influential analysis of the move to mass higher education, Martin Trow noted the importance of balancing considerations of equity and access with quality and the maintenance of standards of excellence in the move to mass higher education⁸. He also noted how public higher education in a mass system becomes a major competitor for public expenditure, and thus needs justification in relation to economic, social, political and cultural dimensions of a society's development⁹.

In looking at the role of public higher education in these three societies, we will thus concentrate on two inter-related questions, which may be of wider interest and relevance. The first is how issues of quality and equity have been balanced through an approach to expansion that has allowed a certain number of institutions to emerge as academic leaders, while the majority of public institutions have been expected to serve local, sectoral or regional needs. The second is how government policies relating to the support of research in public higher education have shaped the public systems.

The Case of Taiwan

Taiwan's rapid and successful economic development from the 1960s to the 1980s earned it the title of one of the Four Little Dragons of Asia. Economically, it made a shift from basic industrial products to higher levels of technology and a greater emphasis on the service economy, as some of its manufacturing moved to Mainland China or other parts of Asia. This required the development of a sophisticated and highly trained workforce, to keep up with changing technological demands. Politically it made the transition from a one-Party system to a multi-party democracy after martial law came

to an end in 1987. In spite of the continuing sensitivity of its unresolved relationship with Mainland China, cultural, social and economic ties with the Mainland have grown apace, and the Taiwan business community has been able to benefit from the many opportunities provided by China's dramatic economic development.

In higher education, we have noted already how massive expansion was achieved through encouragement of the private sector between the 1960s and the 1980s. There was also considerable attention given to short-cycle higher education through the expansion of junior colleges in both private and public sectors. Table 1 shows how the number of junior colleges increased six-fold between 1960 and 1980, while the number of universities increased by less than two-fold. By contrast, in the period between 1985 and 2000 university-level institutions increased four-fold, while there was a steep decline in the number of junior colleges, as seen in Table 2. These changes reflect both the strong social demand for access to university-level higher education, and the economy's need for a more highly educated workforce. They also reflect the shift from an approach to manpower planning that responded specifically to industrial development needs in the 1960s and 1970s, to one that took into account plans for political and social democratization in the 1980s. Government's commitment to public higher education can be seen in the increase from 15 public universities in 1985 to 49 in 2000, a more than three-fold expansion.

Table 1 The Growth of Higher Education in Taiwan: 1960-1980

	1960	1970	1980	1980/1960
University & College	15	22	27	1.8

Public	9	10	14	1.6
Junior College	12	70	77	6.4
Public	5	20	21	4.2
Total	27	92	104	3.9
Public	14	30	35	2.5

Source: computed with data from Wang, Ru-Jer. "From Elitism to Mass Higher Education in Taiwan: The Problems Faced." *Higher Education* 46 (2003): p. 262 & p.264.

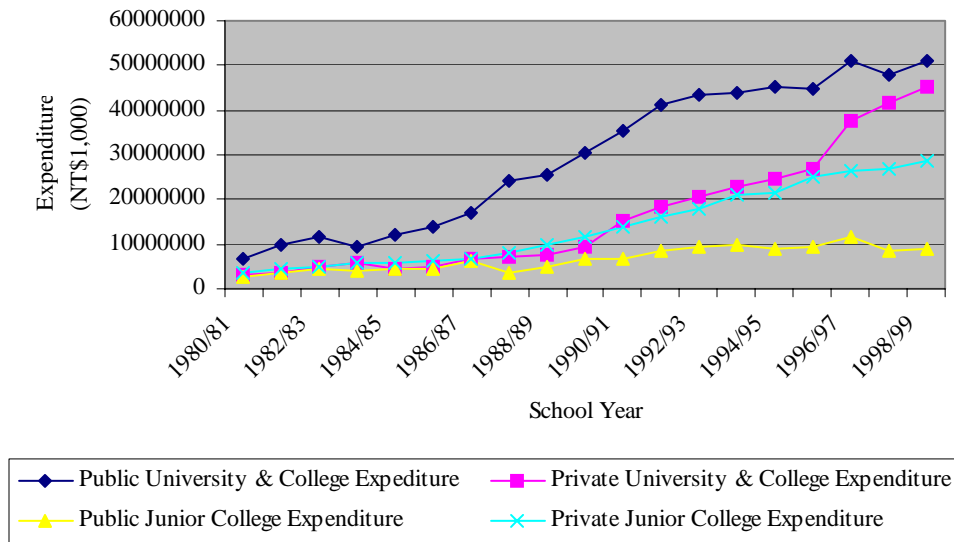
Table 2 The Growth of Higher Education in Taiwan: 1985-2000

	1985	1995	2000	2000/1985
University & College	28	60	127	4.5
Public	15	34	49	3.3
Junior College	77	74	23	0.3
Public	21	16	4	0.2
Total	105	134	150	1.4
Public	36	50	53	1.5

Source: computed with data from Wang, Ru-Jer. "From Elitism to Mass Higher Education in Taiwan: The Problems Faced." *Higher Education* 46 (2003): p. 264 & p.266.

The government of Taiwan has thus given considerable importance to public higher education, while also nurturing the development of a highly diversified private higher education system. Government investment in public higher education has increased, significantly, as shown in Figure 1. The level of expenditure in private institutions has also increased, with the junior colleges being more and more dependent on private resources. However, Table 3 shows the gap that had emerged between public and private sectors by 1994, as measured by a number of resource indicators.

Figure 1 Higher Education Expenditure in Taiwan: 1980-1999



Source: computed with data from Ministry of Education, ed. *Education Statistics of the Republic of China 2003 Edition*. Taipei, Taiwan: Ministry of Education, 2003: pp.45-47.

Table 3 The Gap in Education Resources between Public and Private Institutions in Taiwan: 1994

Resource Item	Public Sector	Private Sector
Library Volume Per Student	66.63	28.81
Student/Teacher Ratio	11.83	20.70
Faculty with Ph.D.	57.83%	32.45%
Recurrent Funding Per Student	NT\$162,370	NT\$84,769
Capital Funding Per Student	NT\$138,850	NT\$46,232

Source: adapted from Wang, Ru-Jer. "From Elitism to Mass Higher Education in Taiwan: The Problems Faced." *Higher Education* 46 (2003): p. 282.

There has also been an increasing commitment to the provision of funds for university-based research in the public sector. In 1987, Taiwan's R & D appropriation was NT\$ 30.3 billion, among which NT\$ 2.0 billion went to public universities, accounting for 86.2% of the total research funds appropriated to the higher education system¹⁰. Between 1991 and 1996, the annual budget of the National Research Council almost quadrupled, with more than half of this going to support research activities in public universities¹¹.

Generally, there is a recognition of the importance of public higher education in ensuring a population that is able to take part responsibly in the country's democratic development and respond creatively to newly emerging social needs. This is evident in the policy change that puts "equal emphasis on quality and quantity", and stresses a balanced steady growth in the higher education population among humanities, social sciences, natural sciences and technology¹².

Taiwan remains in a kind of diplomatic limbo internationally, due to the unresolved tensions between those in its population which would like to see total independence from Mainland China, and those who are seeking an acceptable way of acceding to Mainland China's insistence on sovereignty while promising autonomy over the island's internal affairs. In spite of this difficulty, Taiwan is respected as a prosperous and dynamic modern society, which has been able to adapt successfully to the rapid changes around it in East Asia, and contribute positively to Mainland China's remarkable economic resurgence. Politically, it is the only society in Greater China that has achieved a series of changes in government peacefully through a popular vote in which all citizens are able to participate. It is thus interesting to reflect on how far its system of public higher education, which has been greatly expanded in the last two decades, has contributed to these political, social and economic achievements.

The Case of Hong Kong

Hong Kong's public higher education system consisted of two universities and one polytechnic in the early 1980s, with a University and Polytechnic Grants Committee (UPGC) responsible for the distribution of public funds to these three institutions. The University of Hong Kong has a history going back to 1911. It has been strongly influenced by a British university model, and its graduates dominated the colonial civil service. The Chinese University of Hong Kong was founded in the 1960s, through a merger of several colleges which had moved to HK from Mainland China after 1949. It developed along lines closer to the American model while also stressing its Chinese identity through the use of the Chinese language in some of its teaching activities. The Hong Kong Polytechnic was founded in 1972 to provide for the economy's needs of more technically educated personnel. By the early 1980s, these three institutions functioned as an elite public system providing access to only 2.2% of the age cohort. None of them gave much attention to research, nor was this a significant part of their mandate¹³.

The 1980s were a kind of watershed in Hong Kong's development, for a number of reasons. Economically, with the opening up of Mainland China, most of the light industry that had provided employment for Hong Kong workers since the 1950s, was moved to China, where wages were much lower. Meanwhile, property prices soared, as Hong Kong took up the role of a kind of "middleman" for China's rapid industrialization, and new employment opportunities opened up in areas such as management, financial and legal services, port services etc. Politically, it became clear that Hong Kong faced a major transition from its status as a colony of Britain since 1842, to a return to Mainland

China when the 99-year lease on the New Territories came due in 1997. Discussions between Britain and China under the leadership of Margaret Thatcher and Deng Xiaoping resulted in the Sino-British Joint Agreement of 1984, in which both parties made a commitment to this transition. At the same time it was made clear that Hong Kong would have the status of a special administration region having a high degree of autonomy over its internal affairs. This was followed by intensive efforts in drafting a Basic Law, which was adopted in 1990, and constitutes a kind of constitution for the Hong Kong Special Administrative Region. Culturally, Hong Kong had become quite a center for the arts as its economic dynamism made possible many publicly supported cultural initiatives.

There were thus economic, political, social and cultural factors that played into the demands for the reform of higher education and of the overall education system in the 1980s. A government established Committee to Review Higher and Technical Education in 1980 recommended the expansion of the two universities and the establishment of a second polytechnic¹⁴. In the following year a high level review of the education system was undertaken by a team of experts associated with the OECD, which reported “tremendous social pressures from students, parents and industry...for greater diversification of the educational opportunities available” in higher education¹⁵. In response, the government established the Education Commission as an influential advisory body that should develop and oversee the implementation of needed educational reforms¹⁶.

The expansion of publicly funded higher education that followed can be described as no less than dramatic. In 1984 a second polytechnic was established, and a formerly private missionary college, the Baptist College, was brought into the public education sector and began to receive funding from the UPGC. In 1985 the two polytechnics were authorized to grant degrees, although degree students constituted only 30% of their student body in the initial years¹⁷. In 1986, plans were announced for the creation of an entirely new university of science and technology, which would be part of the public system, and which opened its doors in 1991 as the Hong University of Science and Technology. In 1991 another private college, the Lingnan College, was brought into the public system and allowed to provide degree programs. In the subsequent years, all of these institutions took on the title of university, and the University and Polytechnic Grants Committee was renamed the University Grants Committee in 1994¹⁸. The final institution to come under its aegis was the Hong Kong Institute of Education, founded by the merger of five publicly funded teachers colleges in 1994, and achieving self-accrediting status as a degree granting institution in 2003.

By the mid 1990s, Hong Kong reached the level of a mass higher education system, with about 17.2% of the higher education age cohort in publicly funded degree programs (see Table 4). There are no accurate statistics on the numbers enrolled in various forms of sub-degree higher education, though one scholar has estimated the overall higher education participation rate as 60% of the relevant age group in 2002¹⁹. There has also been a rapid expansion of postgraduate programs, as is evident in Table 4, with the majority of these programs being developed in the three most academically

prestigious universities, the University of Hong Kong, the Chinese University of Hong Kong and the Hong Kong University of Science and Technology.

Table4 Student Enrolment in UGC-Funded Institutions in Hong Kong: 1989-2000

	1989/90	1994/95	1999/00	Annual %
Student Enrolment (FTQ)				
Sub-degree	12,198	9,370	14,376	+1.8%
Undergraduate	24,027	41,782	45,489	+8.9%
Taught Postgraduate	2,250	4,236	6,320	+18.1%
Research Postgraduate	729	2,547	3,763	+41.6%
Total (FTQ)	39,205	57,935	69,948	+7.8%
Total (Headcount)	-	72,154	83,754	-
Percentage of 17-20 Age Group Provided with First Year First- Degree Places	8.6%	17.2%	16.4%	-

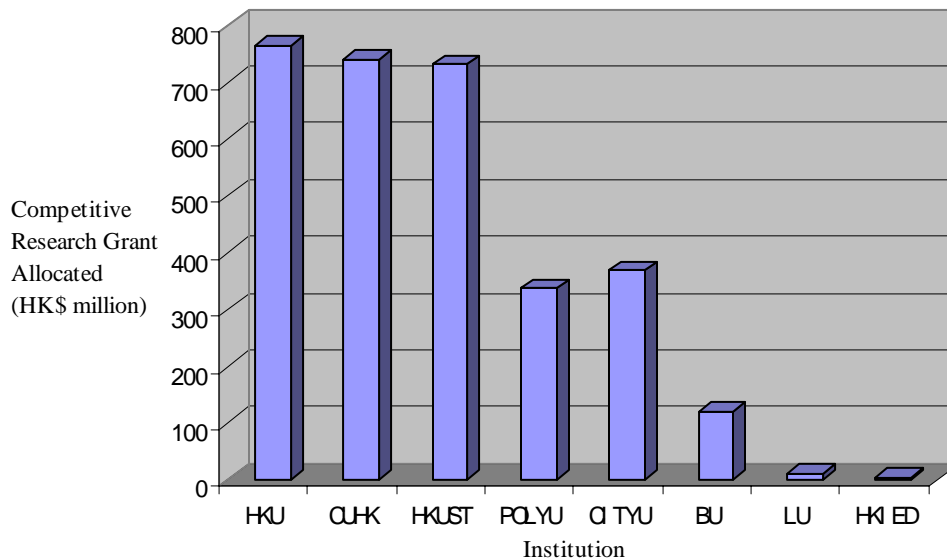
Source: computed with data from the University Grant Committee of Hong Kong. *General Statistics on Higher Education in Hong Kong* (June 2004), online at www.ugc.edu.hk/English/statistics/genstat.pdf; Rong, Wancheng. *Xianggang Gao Deng Jiao Yu: Zheng Ce Yu Li Nian* [Higher Education in Hong Kong: Policy and Conception]. Hong Kong: Joint Publishing (H.K.) Co., Ltd., 2002: p. 23.

The commitment of public funds to this greatly expanded system of higher education was substantial. After the Asian economic crisis of 1997, with ongoing pressures on the economy after Hong Kong's return to China, there was a call for some rethinking of how this large public system of higher education should be sustained. One of the strategic decisions of the late 1990s was to encourage a substantial increase in the sub-degree or associate degree part of the higher education system through self-funded programs that could be managed by public higher institutions or by other social organizations. There was also a strategic decision to encourage private institutions to seek university status through review by the Hong Kong Council for Academic Accreditation, which had been established in 1990. Given that two of the most prominent private institutions, the Baptist College and the Lingnan College, had already been absorbed into

the public system, there were only one or two other institutions likely to be able to meet the expected standard, one of these being Shue Yan College.

Hong Kong thus came rather late to the decision to encourage private sector initiatives in higher education, and the way its public system had developed ensured that these were largely in the sub-degree sector of higher education. Public institutions were clearly expected to take the lead in setting standards for academic excellence and research productivity. A Research Grants Council (RGC) was established in 1991 under the aegis of the University Grants Committee (UGC) and its appropriation for research activities in the UGC-funded universities has increased from 63.8 million HK dollars in 1991/2 to 428 million in 2002/3²⁰. A dynamic research base has emerged, with the majority of funds being dispersed in response to applications from individual academics in the public system and through a peer reviewed evaluation process. A certain amount has also been set aside for the development of areas of excellence which encourage interdisciplinary and inter-institutional cooperation. Quite naturally the profile of disbursement of these research funds reflects the academic quality of the eight public institutions, with the two oldest institutions, HKU and CUHK, as well as the HKUST, being in a position to attract much higher levels of research funding than other institutions within the system, as evident in Figure 2.

Figure 2 Amount Allocated of Competitive Earmarked Research Grant in Hong Kong: 1991-2003 (million HK\$)



Source: computed with data from the Research Grants Council of Hong Kong. "Appendix R: Competitive Earmarked Research Grant Exercise." edited by Research Grants Council Annual Report: 2002. Hong Kong: University Grants Committee, 2003, online at www.ugc.edu.hk/English/statistics/EAppenR.pdf.

In 2001, the University Grants Committee launched a review of higher education by a committee chaired by Lord Stewart Sutherland, then Principal and Vice-Chancellor of the University of Edinburgh. The report of this review was published in March 2002, and it shows a continuing commitment to government support for the public higher education system, combined with a decision to strategically identify a small number of institutions which should become "capable of competing at the highest international levels."²¹ At the same time it makes the point that "greater selectivity does not mean narrowing the base of higher education"²², rather that a diverse set of institutions with distinctive missions will be expected to evolve, with appropriate kinds and levels of research enriching teaching in all university-level institutions. The use of a Research Assessment exercise for allocating research funds on the basis of performance, which has

been developed along British lines, will be sharpened, so that “the highest levels of research excellence can be identified and funded accordingly.”²³

The report also recommended the establishment of a Further Education Council which should oversee the provision of programs at associate degree and parallel levels which should expand rapidly to ensure an even larger percentage of the age cohort receives some form of higher education²⁴. All of these programs are being gradually moved to a self-funding mode, with student fees cover the major costs of expansion, rather than public investment. While no formal target has been set, informally the government is seeking to match the levels of participation found in Shanghai, where over 70% of the age cohort gain access to higher education. Given that there is no intention to support the expansion of university-level participation beyond 18%, this means a long-term goal of over 50% of the age cohort in various forms of sub-degree higher education.

The Hong Kong government strategy is thus to maintain high standards of university level teaching and research through a substantial commitment of public investment to this sector, while encouraging a huge expansion in short-cycle higher education through stimulating the private sector to respond to social demand and the mid-level employment needs of the knowledge society. This is seen as crucial to Hong Kong’s goal of becoming “Asia’s world city”, an economically dynamic and culturally sophisticated society which maintains responsibility for its internal social and political affairs while adapting to its role as a special administrative region of China. There have

been concerns about the pace of democratization and issues of press freedom, yet Beijing has largely kept its promise of non-interference into Hong Kong's internal development.

The Case of Mainland China

China's system of higher education has been fully publicly funded since the establishment of a socialist system after the revolution of 1949. Since China's strategic decision to open up to the world under Deng Xiaoping's leadership in 1978, a small number of private institutions have emerged but these remain limited in scope and impact. Thus there were 1552 institutions in China's public higher education system in 2003, enrolling 11.1 million students, while only 173 private institutions had been accredited by government to offer degree or sub-degree programs, with a total enrolment of 810,000 students. By far the majority of these students are in sub-degree programs.²⁵

China's public higher education system was strongly influenced by the Soviet model of higher education in the 1950s, when a policy of nationalization and centralization of higher education was adopted. Under this system a small number of publicly funded universities was managed by the national ministry of education, while other state ministries and provincial governments each ran their own sectorally or regionally oriented higher education systems. Most institutions were highly specialized in curricular focus, and intended to serve a particular part of the planned socialist economy in the personnel they educated. Almost all nationally funded research was carried out in a separate set of research institutions under the Chinese Academy of Sciences or various government ministries. Research was thus separated from teaching, and teaching

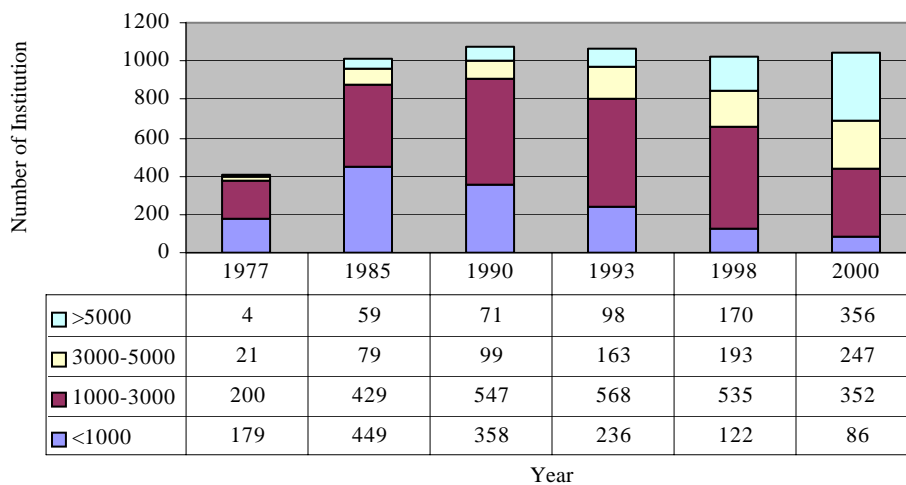
programs were highly specialized, with considerable overlap in provision among the different jurisdictions responsible for higher education, and a consequent waste of resources.

With the move to a socialist market economy after 1978, the Chinese government embarked on a profound set of reforms for its public higher education system, as well as making legal provision for the development of private higher institutions which could respond to burgeoning social demands. The main rationale for reform was laid out in 1985 as “to change the management system of excessive government control of the institutions of higher education...and strengthen the connection of institutions of higher education with production organizations, scientific research organizations and other social establishments, and enable (them)...to take the initiative...to meet the needs of economic and social development.”²⁶ In 1993, a second reform document called for “enlarging accessibility to higher education, nurturing innovative talents and carrying out cutting-edge research.”²⁷ In 1999, the Chinese government spelled out a specific plan for raising the participation rate of the relevant age cohort to 12.5% by the year 2000 and 15% by the year 2010, a dramatic increase from the level of about 3.4% in 1990 and 7.2% in 1995²⁸.

This massive increase has taken place largely through expansion and consolidation of the public higher education system. There was a particular focus on making the system more open and efficient, and breaking down the barriers among different sectors that had been put in place in the 1950s. Thus joint investment by central

and local governments was encouraged, with many institutions being transferred from central to local government jurisdictions, and a large number of consortia and mergers among institutions being encouraged. This has resulted in more comprehensive institutions, with a broad range of knowledge areas, from basic arts and sciences to most fields of professional specialization. These mergers have brought about an effective reversal of the narrow patterns of specialization established in the 1950s. While expansion in the system had taken place through the creation of new institutions in the 1950s, the late 1970s and the 1980s, in the 1990s it was achieved mainly through the expansion of institutional size, a much more resource efficient way of accommodating escalating student numbers. Figure 3 demonstrates this change, showing the relative stability in the number of institutions between 1,016 in 1985 and 1,041 in 2000, but a dramatic rise in the number of institutions enrolling 5,000 students or more, from 59 to 356.

Figure 3 Scale of Public Higher Education Institutions in China: 1977-2000



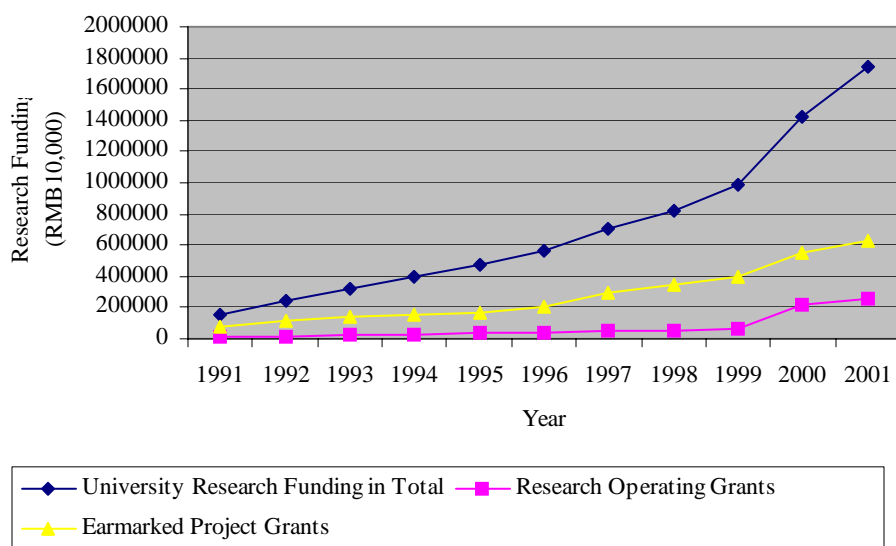
Source: computed with data from Department of Planning of Ministry of Education of China. *Achievement of Education in China 1980-1985* (in Chinese). Beijing, China: People's Education Press, 1986; *Educational Statistics Yearbook of China 1990, 1993, 1998 and 2000* (in Chinese). Beijing, China: People's Education Press, 1991, 1994, 1999, 2001.

The most dramatic increases in higher education provision occurred over the 1990s, with a more than four fold increase in nation wide enrolments in the public system, from 2.1 million in 1990 to 11.1 million in 2003. If the provision for students in non-formal and private institutions is factored into these statistics, the student population has been estimated at 19 million students in 2003, accommodating 17% of the age cohort in China's huge population²⁹. The goals set forth for 2010 in the 1999 reform document noted above had thus already been surpassed by 2003!

In this dramatic move to mass higher education, the Chinese government has made a huge investment in the public sector, yet it has also explicitly encouraged a hierarchy of quality and talent to ensure a concentration of resources in a small number of outstanding institutions. In its 1993 reform document, it announced a policy of giving enhanced financial support to 100 top institutions throughout the country, in order to enable them to attain world class standing in teaching and research. This was nicknamed Project 21/1. Institutions were encouraged to garner support from local governments as well as private sources in preparing their strategic bids for acceptance into this group. In May of 1998, the government made a further strategic decision to identify an even smaller number of institutions for the further concentration of public funding in the search for excellence. About 30 institutions have now qualified for the high levels of public funding that emanate from Project 98/5, which was announced at the time of the centenary celebrations for Peking University in May of 1998.

Another important reform of the 1980s and 1990s has been the establishment of the National Science Foundation of China (NSFC) in 1986, which channels research funding to universities on the basis of peer reviewed proposals. There has also been a high technology research fund, which disburses funds for innovative technological research. The NSFC appropriation for general programs in 2001 totaled ¥797.6 million RMB³⁰, and more than half of this sum went to 30 most research-intensive universities³¹. In 2002, the top 56 research universities obtained more than ¥100 million RMB each, and their research funds totaled ¥14.2 billion RMB³². China's top universities are thus expected to carry out advanced and cutting-edge research activities, with an increasing amount of research funds available, as shown in Figure 4. These funds have enabled universities to compete effectively with institutes of the Chinese Academy of Sciences, which continue to play an important role in national research efforts yet do so on the basis of competitive bids, rather than state planning, as in the system of the 1950s and 1960s. The result of these policies for the support of public higher education can be seen in Table 5, which illustrates the concentration of public resources in the 100 priority institutions which gained acceptance to Project 21/1.

Figure 4 Research Funding for Public Higher Education Institutions in China: 1991-2001



Source: Task Force on Issues of Education and Human Resources in China. *Stride from a Country of Tremendous Population to One of Profound Human Resources (in Chinese)*. Beijing, China: Higher Education Press, 2003: p. 638.

Table 5 Proportion of Project 21/1 Universities' Major Resources out of National Total

Resource Item	Project 21/1 Universities' Proportion (%)
Library book volume	25.65
Assets of instrument & equipment	38.70
Bachelor & sub-degree student enrolment	18.33
Master student enrolment	69.14
Doctoral student enrolment	86.01
International student enrolment	58.19
Research funds	70.10
National key laboratories	100.00
National key programs	83.61
Patent registration	72.81

Source: adapted from Guo, Xinli. "Cong Daxue Gongneng Leiji Fenbu Guilü Kan Gaodeng Jiaoyu Zhongdian Jianshe [Key Building of Higher Education in the View of the Cumulative Distribution Rule of University Function]", *Zhongguo gaodeng jiaoyu* [China Higher Education] 24, no. 19 (2003): p. 16.

While China's public higher education system is huge, in comparison to that of Hong Kong, it is interesting to see how a parallel strategy has emerged. Public investment is focused on enhancing quality in the top layer of the public university system, while still

ensuring basic levels of support for higher education at the regional and local levels. This is seen as crucially important to China's emerging role as a global superpower, with increasing responsibility for economic and political leadership in the Asian region and globally. China's decision to join the WTO in December of 2001, and its successful bid to host the Olympic Games in 2008, indicate the positive way it is embracing this new challenge.

Conclusion: A Strategic Role for Public Higher Education in Post-Confucian Societies

If we return to Trow's framework, it seems the three jurisdictions under examination in this paper have used public universities to maintain a balance among quality, research excellence and accessibility. While Hong Kong and Mainland China relied heavily on the public system to cross the threshold of mass higher education, they have subsequently looked to the private sector to respond to lower levels of social demand. By contrast Taiwan relied heavily on the private sector in reaching the threshold of mass higher education, and then increased its investment in public universities to ensure the maintenance of quality in the mass system. This was a response to concerns over quality in the private sector.

Trow also made the point that the movement of a system from elite to mass higher education wouldn't necessarily mean the forms and patterns of the previous phase were transformed altogether. On the contrary, in a mass system, elite functions might continue

to be performed and even flourish, a pattern that has been evident in the United States.³³ There may be a certain necessity to this in the era of the knowledge-based economy, whose development relies not only on the overall quality of human resources but the capability for knowledge advancement and technological innovation. Trow further raised the question of how a system could successfully maintain diverse functions when its emphasis had shifted to forms and patterns of mass higher education³⁴. The three jurisdictions we have examined in this chapter provide unique yet parallel answers to this question.

In contrast to the U.S. situation, where many of the elite and research-intensive universities are private and have emerged out of a long process of competition and natural selection, these three jurisdictions have relied almost entirely on public universities to exercise academic and social leadership. Public resources have been marshaled to push forward research-intensive public universities at a rapid pace. This observation is particularly notable in the cases of Hong Kong and Mainland China, while Taiwan has also substantially increased investment in public higher education in the recent decade.

Within the relatively small scale of its public higher education sector, the Hong Kong government has adopted a mechanism of competition which concentrates research dollars in three most competitive universities, while encouraging all universities to nurture a research culture in their teaching, and stimulating private sector initiatives to respond to social demand at lower levels. Such a policy was not possible for Mainland

China, given the huge size of the public higher education system. Instead, there seems to have been an increasing demarcation between the central and local governments. The central government has channeled substantial financial resources to a small group of selected elite universities to nurture their research capacity for competition at the international level. Meanwhile the majority of public universities have turned to their local governments for extra funding, and in return take in more students from their localities and nurture the human resources suited to the needs of local and regional economic development.

This somewhat hierarchical approach does not seem to have raised much concern over the equity of higher education provision. As long as there is a perceived equal opportunity to compete for entrance to the top echelons within the system, most people are prepared to accept the differential levels of resources and differential functions given to national, regional and local institutions. We believe the reason for this lies in China's cultural traditions. In his analysis of the miracle of Asian economic development, Vogel (1991) identified four cultural patterns that contributed to the success story: the role of a meritocratic elite, the examination ladder, the importance of the group and an emphasis on self-cultivation or self-improvement³⁵. All of these cultural patterns are consonant with highly stratified higher education systems.

Finally, theories of policy development distinguish between policies based on rational planning and policies that arise from a pragmatic reaction to internal and/or external impacts. The first is termed a "policy blueprint" approach, and the second a

matter of “challenge and response”³⁶. While Taiwan seems have taken a “policy blueprint” approach in its move to mass higher education, the Hong Kong and Mainland China cases contain a mixture of both, with the “challenge and response” approach predominant. The major determining factors actually producing policy changes appear to have been pragmatic responses to perceived crises: a feared brain drain in the case of Hong Kong the urgent needs of a rapidly growing economy in the case of China.

Notes:

¹ Ruth Hayhoe, "An Asian Multiversity? Comparative Reflections on the Transition to Mass Higher Education in East Asia," *Comparative Education Review* 39, no. 3 (1995): p. 301.

² Stewart R. Sutherland, "Higher Education in Hong Kong. Report of the University Grants Committee," (Hong Kong: University Grants Committee of Hong Kong, March 2002), p. 1.

³ University Grants Committee of Hong Kong, "Higher Education in Hong Kong," (Hong Kong: University Grants Committee of Hong Kong, October 1996), pp. 16-33.

⁴ Ruth Hayhoe and Qiang Zha, "Becoming World Class: Chinese Universities Facing Globalization and Internationalization," *Harvard China Review* V, no. 1 (Spring 2004): p. 88.

⁵ The World Bank Group, *Hong Kong, China at a Glance* (2004 [cited November 24 2004]); available from http://www.worldbank.org/cgi-bin/sendoff.cgi?page=%2Fdata%2Fcountrydata%2Faag%2Fhkg_aag.pdf.

⁶ Ruth Hayhoe, *China's Universities, 1895-1995: A Century of Cultural Conflict*, *Garland Reference Library of Social Science ; V. 997. Garland Studies in Higher Education ; V. 4* (New York: Garland Pub., 1996), p. 135.

⁷ Ruth Hayhoe, "China's Universities since Tiananmen: A Critical Assessment," *The China Quarterly* June 1993, no. 134 (1993): p. 294.

⁸ Martin A. Trow, *Problems in the Transition from Elite to Mass Higher Education*, *Reprint - Carnegie Commission on Higher Education* ([s.l.: s.n.], 1973), pp. 34-39.

⁹ *Ibid.*, p. 4.

¹⁰ Yuanjun Liu, "Gaodeng Jiaoyu Yu Keji Fazhan: Xiankuang Yu Zhanwang [Higher Education and Advancement of Science and Technology: *Status Quo* and Prospect]," in *Ershiyi Shiji Woguo Gaodeng Jiaoyu De Fazhan Qushi [the Tendency of Higher Education Development in Our Nation in the 21st Century]*, ed. Dan jiang daxue jiaoyu yanjiu zhongxin [Education research center at the Danjiang University] and Ershiyi shiji jijinhui [21st century foundation] (Taipei, Taiwan: Shi da shu yuan [The (Taiwan) normal university press], 1990), pp. 453-54.

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- ¹¹ Chao-Shiuan Liu, "Science Education and High-Tech Industry in Taiwan," in *Proceedings of Canada-Taiwan Higher Education Conference*, ed. Philip C. Chang (Calgary: University of Calgary, 1991), p. 68.
- ¹² Kirby Chaur-Shin Yung, "Higher Education Policy of the Republic of China," in *Proceedings of Canada-Taiwan Higher Education Conference*, ed. Philip C. Chang (Calgary: University of Calgary, 1991), p. 121.
- ¹³ University Grants Committee of Hong Kong, "Higher Education in Hong Kong," p. 21.
- ¹⁴ Wancheng Rong, *Xianggang Gao Deng Jiao Yu: Zheng Ce Yu Li Nian [Higher Education in Hong Kong: Policy and Conception]* (Hong Kong: Joint Publishing (H.K.) Co., Ltd., 2002), p. 15.
- ¹⁵ Isidore Cyril Cannon, "Higher Education in Hong Kong," *Higher Education Quarterly* 51, no. 4 (1997): p. 309.
- ¹⁶ Government Information Service of Hong Kong, "Hong Kong 1984: A Review of 1983," (Hong Kong: Government Information Service of Hong Kong, 1984), p. 3.
- ¹⁷ *Ibid.*, p. 13.
- ¹⁸ Cannon, "Higher Education in Hong Kong," p. 311.
- ¹⁹ Rong, *Xianggang Gao Deng Jiao Yu: Zheng Ce Yu Li Nian [Higher Education in Hong Kong: Policy and Conception]*, p. viii.
- ²⁰ Research Grants Council of Hong Kong, "Appendix R: Competitive Earmarked Research Grant Exercise," ed. Research Grants Council Annual Report: 2002 (Hong Kong: University Grants Committee, 2003), online at www.ugc.edu.hk/English/statistics/EAppenR.pdf.
- ²¹ Sutherland, "Higher Education in Hong Kong. Report of the University Grants Committee," p. viii.
- ²² *Ibid.*, p. vii.
- ²³ *Ibid.*, p. ix.
- ²⁴ *Ibid.*
- ²⁵ Ministry of Education of China, *2003 Nian Quanguo Jiaoyu Shiye Fazhan Tongji Gongbao [2003 National Education Development Statistics Bulletin]* (China Education and Research Network, 2004 [cited May 27 2004]); available from <http://www.edu.cn/20040527/3106677.shtml>.
- ²⁶ Central Committee of Chinese Communist Party, "Guanyu Jiaoyu Tizhi Gaike De Queding [Decision on the Reform of the Education System]," in *Shiyi Jie San Zhong Quanhui Yilai Zhongyao Jiaoyu Wenxian Xuanbian [Selection of Important Education Policy Papers since the Third Plenary Session of the 11th National Congress of Chinese Communist Party]*, ed. Department of Policy & Legislature of State Education Commission (Beijing, China: Jiaoyu kexue chubanshe [Educational science publishing house], 1985), p. 183.
- ²⁷ Central Committee of Chinese Communist Party and State Council, *Zhongguo Jiaoyu Gaige He Fazhan Gangyao [Outline for Educational Reform and Development in China]* (1993 [cited September 16 2001]); available from <http://www.edu.cn/special/showarticle.php?id=298>.
- ²⁸ State Council and Ministry of Education of China, "Mianxiang 21 Shiji Jiaoyu Zhengxing Xingdong Jihua [Program of Educational Revitalization for the Twenty-First Century]," in *Zhongguo Jiaoyu Nianjian [China Education Yearbook] 1999*, ed. Ministry

of Education of China (Beijing, China: Renmin jiaoyu chubanshe [People's education press], 1999).

²⁹ Ministry of Education of China, *2003 Nian Quanguo Jiaoyu Shiye Fazhan Tongji Gongbao* [2003 National Education Development Statistics Bulletin] ([cited]).

³⁰ National Science Foundation of China, *Nsfc Expenditure: 1996-2001* (2001 [cited November 25 2004]); available from http://www.nsf.gov.cn/e_nsf/desltop/zn/0105.htm.

³¹ Ministry of Education of China, *2001 Niandu Huo Guojia Ziran Kexue Jijin Mian Shang Xiangmu Zizhu De Qian 30 Suo Gaodeng Yuanxiao Mingdan* [a List of Top 30 Higher Education Institutions with General Program Funding from the National Science Foundation of China in 2001] (2003 [cited November 25 2004]); available from <http://www.cer.net/article/20030612/3086683.shtml>.

³² Ministry of Education of China, *2002 Niandu Keji Jingfei Chaoguo 1 Yi Yuan De Gaodeng Xuexiao Mingdan* [a List of Higher Education Institutions with More Than ¥100 Million Rmb Research Funding in 2002] (2004 [cited]); available from <http://www.cer.net/article/20040618/3108368.shtml>.

³³ Trow, *Problems in the Transition from Elite to Mass Higher Education*, p. 19.

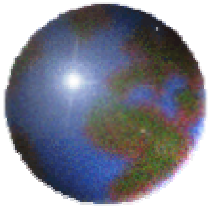
³⁴ *Ibid.*, p. 20.

³⁵ Ezra Vogel, *The Four Little Dragons: The Spread of Industrialization in East Asia* (Cambridge, Mass.: Harvard University Press, 1991), pp. 93-102.

³⁶ A. E. Sweeting and P. Morris, "Educational Reform in Post-War Hong Kong," *International Journal of Educational Development* 13, no. 3 (1993): p. 201.



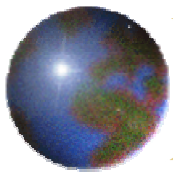
*The Role of Public Universities in the Move to Mass
Higher Education: Some reflections on the experience of
Taiwan, Hong Kong and China*



Ruth Hayhoe and Qiang Zha

Ontario Institute for Studies in Education of the University of Toronto

Prepared for *Taking Public Universities Seriously:*
A Conference Sponsored by the University of Toronto

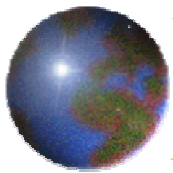


China, Hong Kong & Taiwan



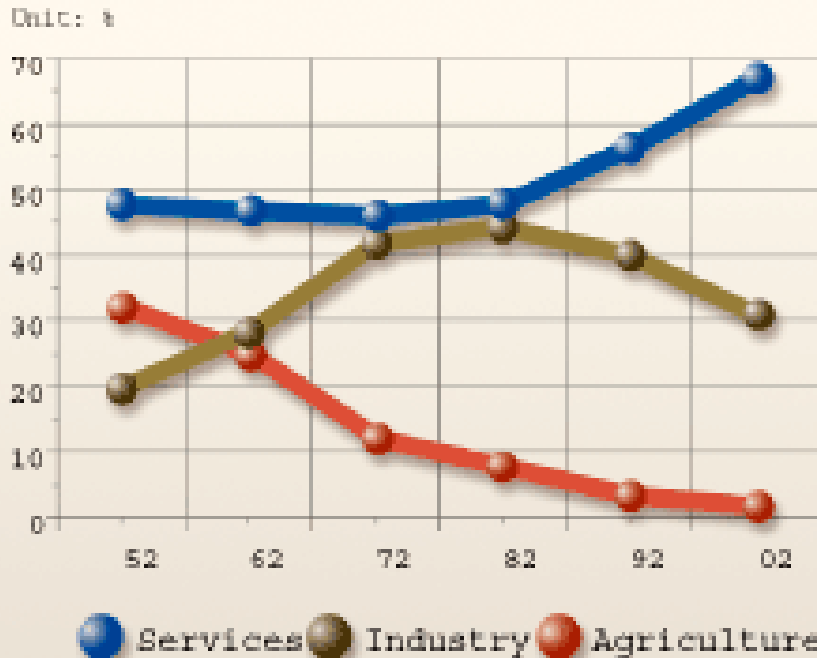
<http://chinapage.com>

Beijing	北京	Guangzhou	广州	Harbin	哈尔滨	Hainan Dao	海南岛
Lhasa	拉萨	Lanzhou	兰州	Mount Everest	珠穆朗玛峰	Lanzhou	兰州
Nanjing	南京	Shanghai	上海	Shenyang	沈阳	Taipei	台北
Tianjin	天津	Wuhan	武汉	Xi'an	西安	Zhengzhou	郑州



Taiwan's Profile in 2002

GDP Sector Percentages

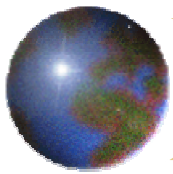


Source: Directorate-General of Budget, Accounting and Statistics

Population:
22.6 million

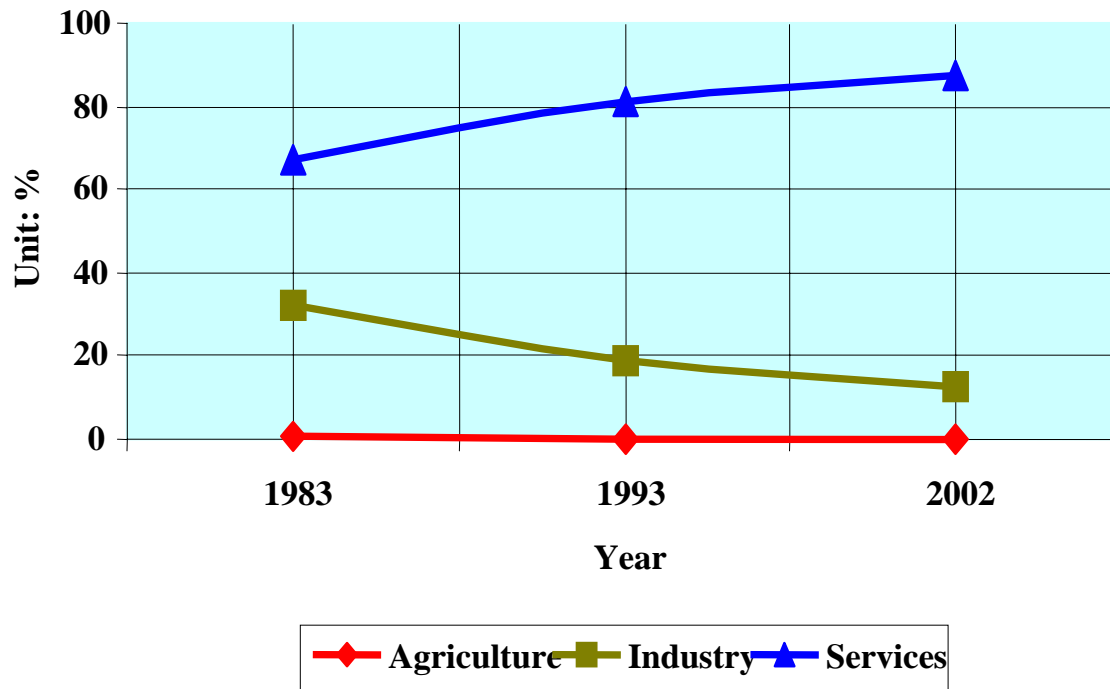
GDP:
281.9 billion US\$

Public Institutions:
53



Hong Kong's Profile in 2003

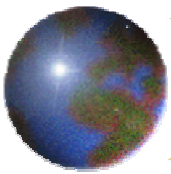
GDP Sector Percentages



Population:
6.8 million

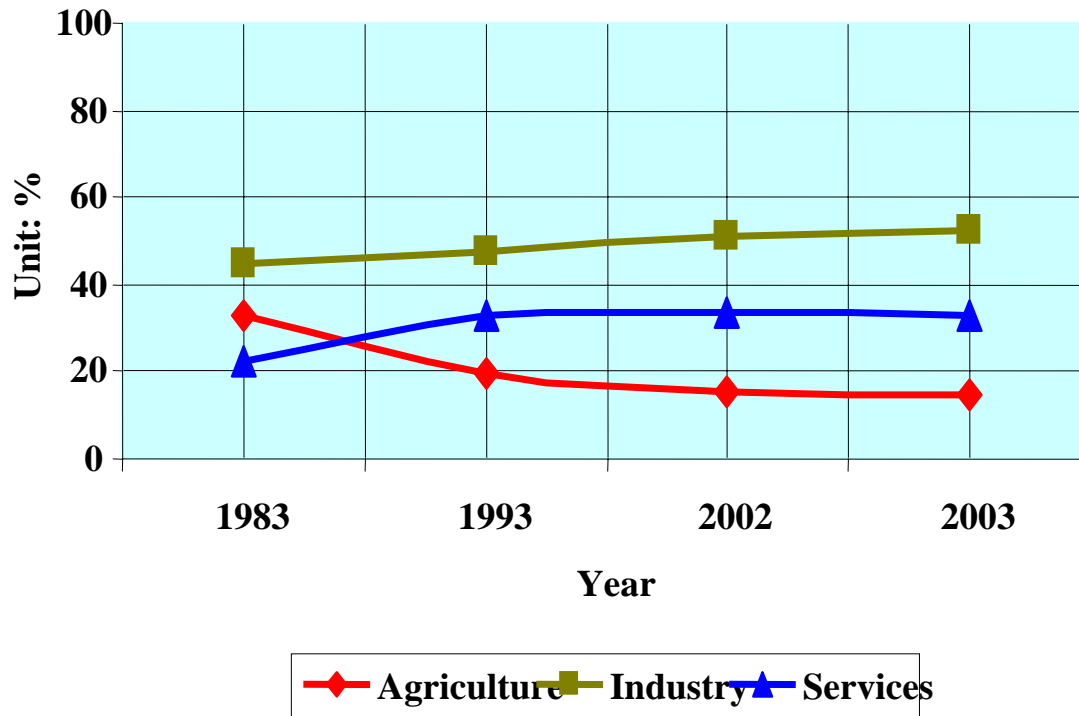
GDP:
158.6 billion US\$

Public Institutions:
8



China's Profile in 2003

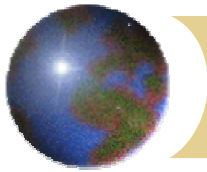
GDP Sector Percentages



Population:
1,288.4 million

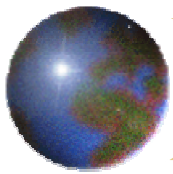
GDP:
1,412.3 billion US\$

Public Institutions:
1552



The Case of Taiwan

- ❖ **Move to mass higher education quite early, 14% of age cohort by 1970, 34% by 1990**
- ❖ **Initial heavy dependence on private sector (73% of enrolments in 1990)**
- ❖ **Significant increase in public institutions between 1985 and 2000**
- ❖ **Substantial increase in research funding for public institutions**



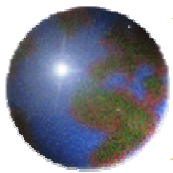
The Expansion of Higher Education in Taiwan: 1960-1980 and 1985-2000

The Growth of Higher Education in Taiwan: 1960-1980

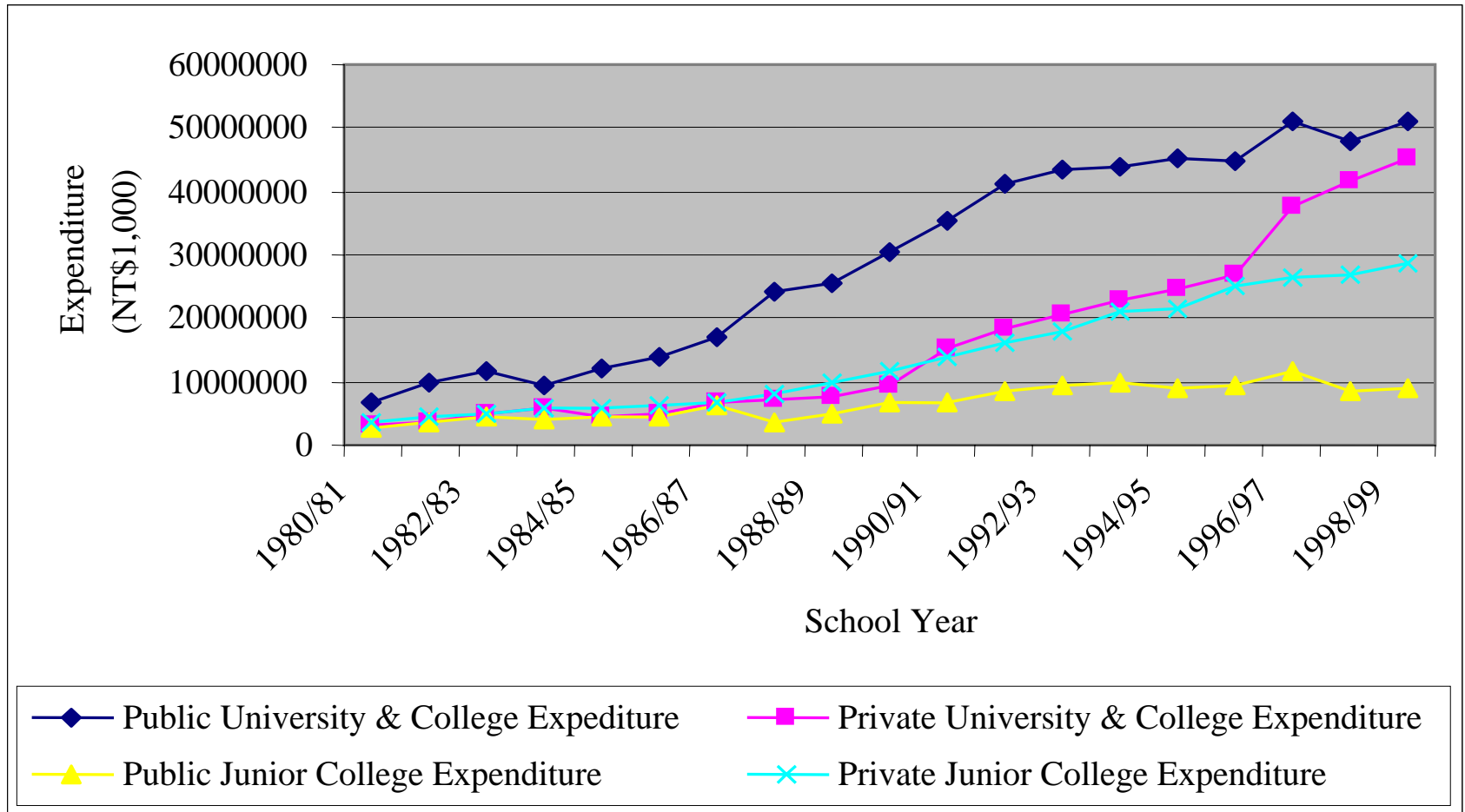
	1960	1970	1980	1980/1960
University & College	15	22	27	1.8
Public	9	10	14	1.6
Junior College	12	70	77	6.4
Public	5	20	21	4.2
Total	27	92	104	3.9
Public	14	30	35	2.5

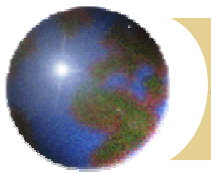
The Growth of Higher Education in Taiwan: 1985-2000

	1985	1995	2000	2000/1985
University & College	28	60	127	4.5
Public	15	34	49	3.3
Junior College	77	74	23	0.3
Public	21	16	4	0.2
Total	105	134	150	1.4
Public	36	50	53	1.5



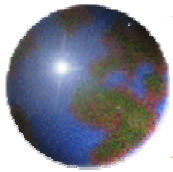
Higher Education Expenditure in Taiwan: 1980-1999





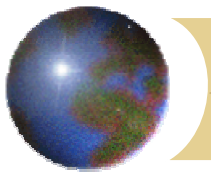
The Gap in Education Resources between Public and Private Institutions in Taiwan: 1994

Resource Item	Public Sector	Private Sector
Library Volume Per Student	66.63	28.81
Student/Teacher Ratio	11.83	20.70
Faculty with Ph.D.	57.83%	32.45%
Recurrent Funding Per Student	NT\$162,370	NT\$84,769
Capital Funding Per Student	NT\$138,850	NT\$46,232



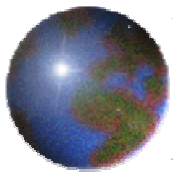
The Case of Hong Kong

- ✦ **Move to mass higher education stimulated by Sino-British Joint Agreement (1984) and Basic Law (1990)**
- ✦ **Rapid expansion from 2 to 8 public funded universities between 1985 and 1994**
- ✦ **Research Grants Council established in 1991**
- ✦ **Sustained commitment to excellence in public universities, while leaving short-cycle higher education to the private sector after 1997**

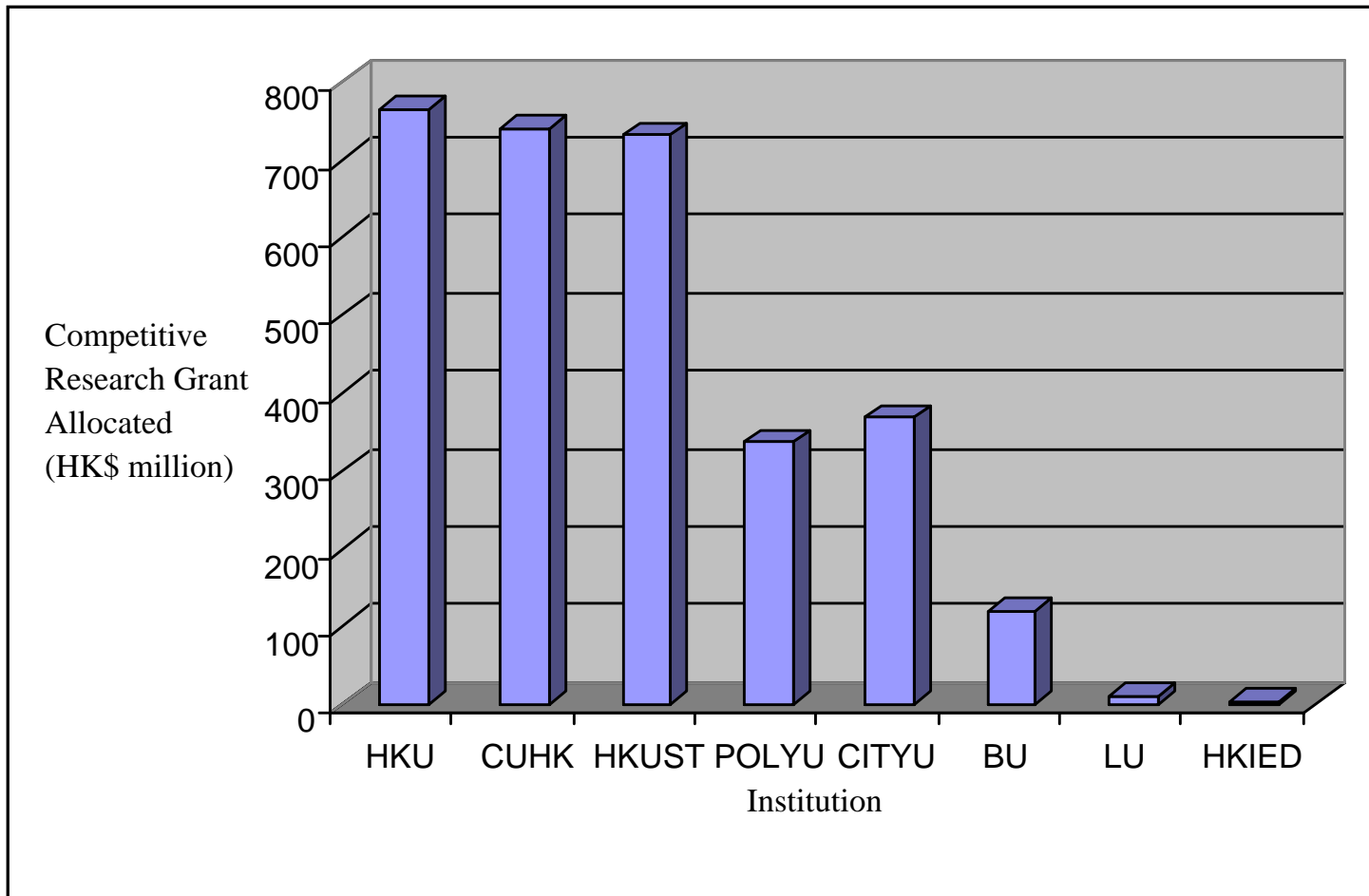


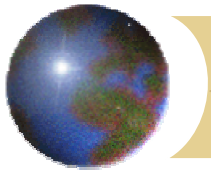
Student Enrolment in UGC-Funded Institutions in Hong Kong: 1989-2000

	1989/90	1994/95	1999/00	Annual %
Student Enrolment (FTQ)				
Sub-degree	12,198	9,370	14,376	+1.8%
Undergraduate	24,027	41,782	45,489	+8.9%
Taught Postgraduate	2,250	4,236	6,320	+18.1%
Research Postgraduate	729	2,547	3,763	+41.6%
Total (FTQ)	39,205	57,935	69,948	+7.8%
Total (Headcount)	-	72,154	83,754	-
Percentage of 17-20 Age Group Provided with First Year First- Degree Places	8.6%	17.2%	16.4%	-



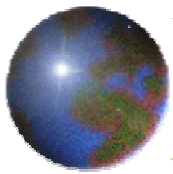
Amount Allocated of Competitive Earmarked Research Grant in Hong Kong: 1991-2003



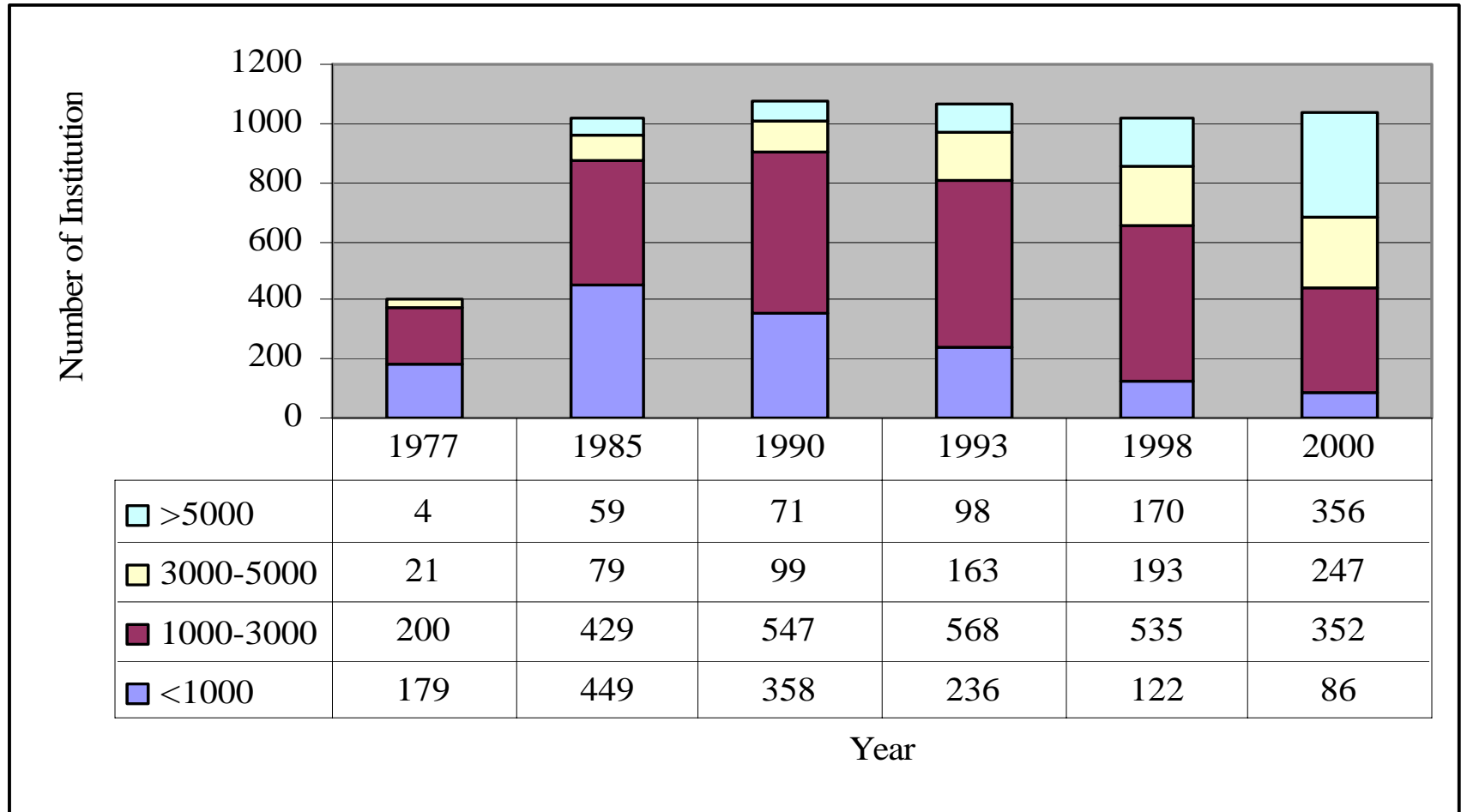


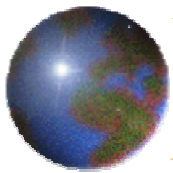
The Case of China

- ❖ **Move to mass higher education in the mid-1990s stimulated by rapid economic growth**
- ❖ **From 3.4% of age cohort in 1990 to 15% in 2002 (mainly by expansion in size of public institutions)**
- ❖ **Large public sector, with priority funding for top 100, then top 30 institutions**
- ❖ **National Science Foundation set up in 1986, massive expansion in research funding thereafter**



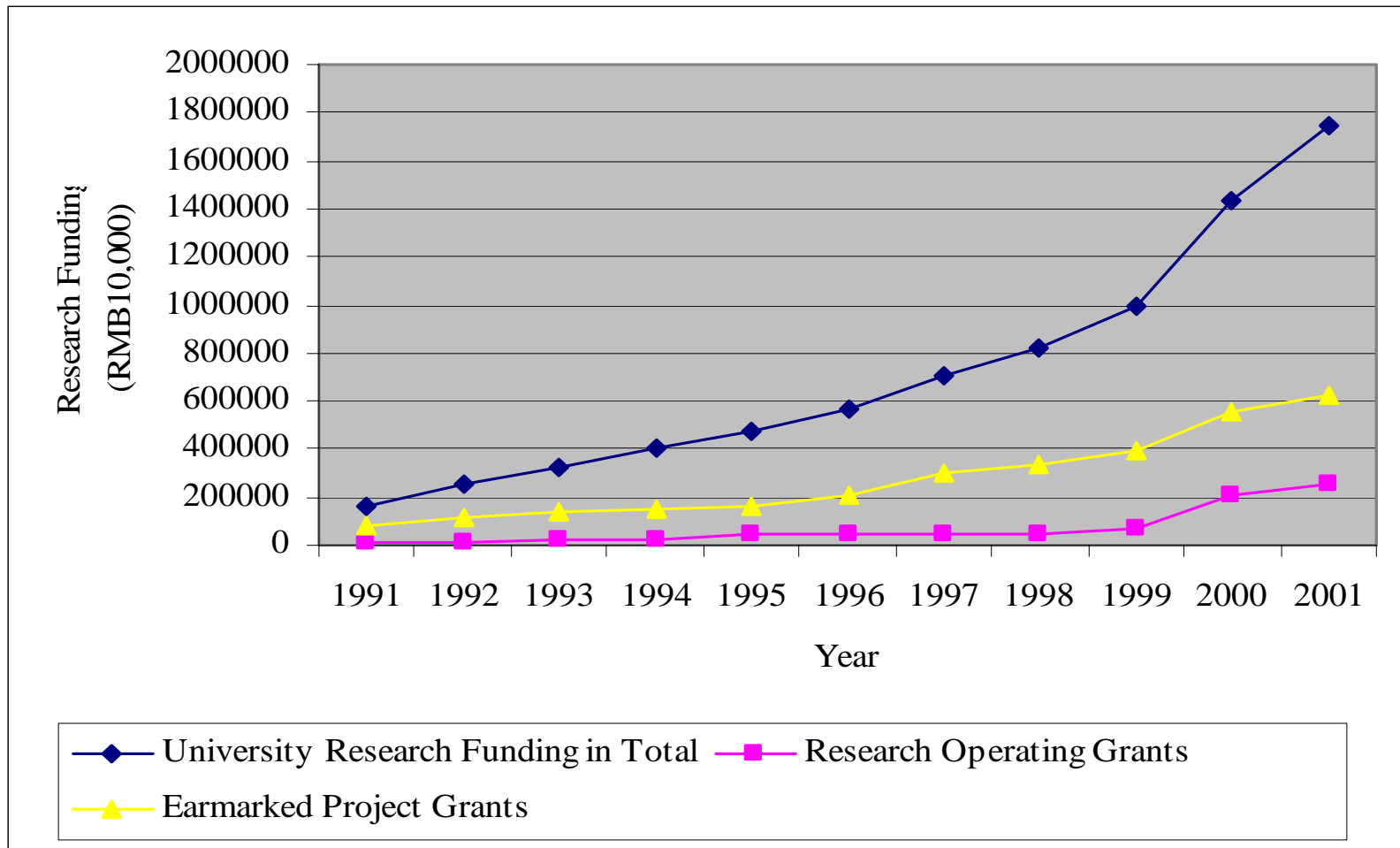
Scale of Public Higher Education Institutions in China: 1977-2000

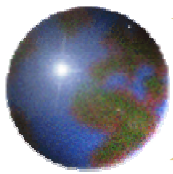




Research Funding for Public Higher

Education Institutions in China: 1991-2001

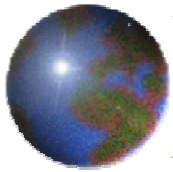




Proportion of Project 21/1 Universities'

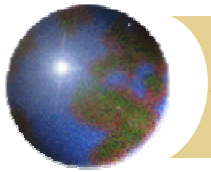
Major Resources out of National Total

Resource Item	Project 21/1 Universities' Proportion (%)
Library book volume	25.65
Assets of instrument & equipment	38.70
Bachelor & sub-degree student enrolment	18.33
Master student enrolment	69.14
Doctoral student enrolment	86.01
International student enrolment	58.19
Research funds	70.10
National key laboratories	100.00
National key programs	83.61
Patent registration	72.81



Conclusions

- ❖ **High priority given to public institutions as the leading sector in the move to mass higher education—an emphasis on quality as well as accessibility**
- ❖ **Importance of scientific and academic leadership at top levels—equal opportunity to compete, but unequal distribution of resources**
- ❖ **Common profile of post-Confucian societies, even though there was no consultation among them**



Thank You!