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Higher Education

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This chapter focuses on the structure and development of higher education in Hong Kong and Macao, paying particular attention to the nature and impact of quantitative and qualitative growth since the 1980s. The chapter begins by analysing higher education in the two territories in the context of broader literatures on comparative higher education and the economics of education. Teichler (1996) pointed out that comparison is a basic methodological approach in the social sciences, and argued that international comparison is indispensable for analysis of macro-societal phenomena in higher education. He identified four "spheres of knowledge" in higher education. This chapter focuses mainly on two of these spheres, namely aspects of organisation and governance of higher education, and quantitative-structural aspects of higher education.

Comparative analysis of the policies and development of higher education in Hong Kong and Macao exposes major issues concerning size, shape, planning, and financing. These matters can be classified under Teichler's first sphere, namely organisation and governance. Concerns about shortfalls or surpluses of qualified applicants for higher education belong to the second sphere, namely quantitative-structural aspects. These matters are frequently discussed by policy-makers, administrators, researchers and students in both Hong Kong and Macao. Identification of patterns and trends helps to chart possible courses for future development in the two territories.

Higher Education Institutions and Enrolments

Hong Kong has 11 degree-awarding higher education institutions, eight of which are funded by the University Grants Committee (UGC). The Academy for Performing Arts is also publicly funded, but not through the UGC. The Open University of Hong Kong and Shue Yan College are self-financing (Table 3.1). Alongside these institutions are various post-secondary bodies offering diplomas and associate degrees. They include Chu Hai College, the Institute of Vocational Education which has nine campuses, and a group of community colleges. In 2002, the UGC-funded institutions provided places for about 18 per cent of the 17-20 age group, on top of which a further 24 per cent of people in the same age group had access to higher education in other forms, including sub-degree programmes and vocational training, or went to universities overseas (Hong Kong, Information Services Department 2003, p.149).

Table 3.1: Higher Education Institutions, Hong Kong

Institution	Funding Status	Year of Foundation
University of Hong Kong	Public (UGC)	1911
Hong Kong Baptist University (formerly Hong Kong Baptist College)	Public (UGC)	1956
Chinese University of Hong Kong	Public (UGC)	1963
Lingnan University (formerly Lingnan College)	Public (UGC)	1967
Shue Yan College	Self-financed	1971
Hong Kong Polytechnic University (formerly Hong Kong Polytechnic)	Public (UGC)	1972
City University of Hong Kong (formerly City Polytechnic of Hong Kong)	Public (UGC)	1984
Academy for Performing Arts	Public (non-UGC)	1984
Hong Kong University of Science & Technology	Public (UGC)	1988
Open University of Hong Kong	Self-financed	1989
Hong Kong Institute of Education (created by merging four Colleges of Education and the Institute of Language in Education)	Public (UGC)	1994

Macao has a much smaller population and thus a smaller higher education sector. However, in proportional terms the number of institutions is quite large. In 2004, Macao had 12 institutions, of which four were public and eight were private (Table 3.2).

Table 3.2: Higher Education Institutions, Macao

Institution	Funding Status	Year of Foundation
University of Macau (formerly University of East Asia)	Public	1981
Macau Security Force Superior School	Public	1988
Macau Polytechnic Institute	Public	1991
United Nations University, Institute for Software Technology	Private	1991
Asia International Open University	Private	1992
Institute of European Studies of Macau	Private	1995
Institute for Tourism Studies	Public	1995
Inter-University Institute of Macau	Private	1996
Kiang Wu Nursing College of Macau	Private	1999
Macau Institute of Management	Private	2000
Macao University of Science & Technology	Private	2000
Macau Millennium College	Private	2002

In both names and orientations, the institutions on each side of the Pearl River Delta mirrored each other. Thus the oldest institution in Hong Kong, the University of Hong Kong, had as its counterpart the University of Macau. Hong Kong's two Polytechnic Universities were matched by the Macau Polytechnic Institute; the Hong Kong University of Science & Technology was matched by the Macao University of Science & Technology; and the Open University of Hong Kong was matched by the Asia International Open University. In all these pairs the Hong Kong institutions were the older ones, and Hong Kong had been a significant model for Macao. However, other elements were distinctive to each territory. Hong Kong did not have a counterpart to the Institute of Software Technology of the United Nations University. Hong Kong did have

a police training school, but unlike the Macau Security Force Superior School it did not operate a degree programme; and while Hong Kong like Macao had provision to train nurses and tourism workers, that training was not undertaken in free-standing institutions.

Table 3.3 shows enrolments in the institutions. In general, Hong Kong institutions were considerably larger than their counterparts in Macao. Questions of economies of scale were periodically raised in both territories, but assertions about the desirability of merger were usually nullified by arguments about distinctive institutional histories and missions. In Macao, the smallest public-sector institution is the Macau Security Force Superior School, which has a specialised focus and role that sets it apart from other institutions. The other very small institutions in Macao are operated by the private sector, and government policy makers have not considered it appropriate to interfere in decision-making on the size of such institutions.

Table 3.3: Higher Education Enrolments, Hong Kong and Macao

Hong Kong	Enrolments[1]	Macao	Enrolments[2]
University of Hong Kong	12,133	University of Macau	3,223
Hong Kong Baptist University	4,494	Macau Security Force Superior School	23
Chinese University of Hong Kong	11,567	Macau Polytechnic Institute	2,020
Lingnan University	2,171	United Nations University, International Institute for Software Technology	94
Shue Yan College	2,500	Asia International Open University	5,480
Hong Kong Polytechnic University	13,102	Institute of European Studies of Macau	83
City University of Hong Kong	13,253	Institute for Tourism Studies	233
Academy for Performing Arts	738	Inter-University Institute of Macau	175
Hong Kong University of Science & Technology	6,806	Kiang Wu Nursing College of Macau	273
Open University of Hong Kong	12,234	Macau Institute of Management	92[3]
Hong Kong Institute of Education	5,024	Macao Univ. of Science & Technology	1,145
		Macau Millennium College	–[4]

[1] Full-time equivalents, 2001/02; [2] Headcounts, 2000/01; [3] 1999/00; [4] Enrolments only commenced in 2002/03.

Sources: Bray et al. (2002), p.20; Hong Kong, Information Services Department (2003), p.150; individual institutions.

In addition to these institutions were enrolments in external institutions which operated programmes in the two territories. For example, in Hong Kong the Australian Catholic University operated programmes in conjunction with Caritas, an education and social service organisation operated by the Catholic church; and many universities in Australia, the United Kingdom (UK), United States of America (USA), Canada and China offered degrees in conjunction with the schools of continuing education of the UGC-funded institutions. Parallel arrangements existed in Macao.

Planning of Higher Education Expansion

Education systems and policies develop under the influence of economic development,

political considerations and social values (Organisation for Economic Co-operation & Development [OECD] 2000; Adams 2004). Higher education systems and policies in Hong Kong and Macao are no exception to this general statement.

Trow (1974) defined higher education systems which enrolled up to 15 per cent of the age group as elite systems. He defined ones which enrolled between 15 and 40 per cent as mass systems, and ones with enrolment rates above 40 per cent as universal systems. On this definition, Hong Kong entered the era of mass higher education in 1993/94.

The Hong Kong government's decision to enter a system of mass higher education was based on a number of factors. First was the postulate of human capital theory that investment in higher education would increase the productivity of the population for further economic growth (UGC 1996). According to economists such as Blaug (1970), Becker (1975), McMahon (2002), and Psacharopoulos & Patrinos (2002), education contributes directly to the growth of national income by improving the skills and productive capacities of the labour force. Based on this notion, from the mid-1970s the Hong Kong government used manpower forecasting as a planning tool for education policy (Bray 1997b; K.M. Cheng 1997b). In the first half of the 1990s, three manpower projections – in 1990, 1991 and 1994 – forecasted higher education manpower requirements up to 2001. The first two forecasts served as basic indicators for manpower requirements in Hong Kong in the 1990s, and higher education expanded correspondingly. The 1994 forecast projected a surplus of graduate labour. This projection, taken in conjunction with the report of a study on Preparation of Students for Tertiary Education (POSTE Team 1996), led to a policy change which slowed the pace of expansion and shifted attention to efficiency and quality.

The expansion in the late 1980s and early 1990s was also embarked upon for other reasons. First, it was to meet the government's long term goal of providing equal access to higher education. Second, it was a response to the strong social demand for higher education. Third, many educators in Hong Kong believe that the decision in October 1989 to accelerate expansion of higher education was a short-term reaction to a perceived crisis of confidence and credibility in the context of brain drain relating to the 1997 issue and the aftermath of Beijing's Tienanmen Square incident in June 1989 (Morris, McClelland & Leung 1994).

In 1994, Hong Kong's two polytechnics were upgraded to university status. In 1997, the Open Learning Institute and Lingnan College were also upgraded and given the status of self-validation. These moves transformed university education from a binary to a unified system, and facilitated the administration of funding for degree programmes. Since then, higher education in Hong Kong has operated in a segmented market where degree programmes are offered mainly by the UGC-funded institutions and the Open University of Hong Kong, and diploma and other sub-degree programmes are mainly offered by such bodies as the Hong Kong Institute of Education, the Institute of Vocational Education, and the Academy for Performing Arts.

The community colleges were established following the publication of the Education Commission's *Education Blueprint for the 21st Century* (Education Commission 1999, p.22). The colleges were designed to expand higher education provision at limited cost to the government, and offer diploma and associate degree programmes. Hong Kong's Chief Executive announced in his 2002 policy address that within a decade 60 per cent of senior secondary school leavers would receive tertiary education (Tung 2002, p.22). To assist the expansion, the government offered loans for

the start up expenses of non-profit community colleges. This policy aimed to develop a diversified higher education system, widen students' choice, and encourage healthy competition (Hong Kong, Education & Manpower Bureau 2001, p.10).

Macao's system of higher education has been less developed, but made great strides during the 1990s (Bray 2001). Portugal did not give Macao as much attention as the UK gave Hong Kong, and education services were not generally regarded as a public good throughout the bulk of Macao's 400 years of colonialism (Tang & Morrison 1998, p.246). Education was almost wholly dependent on private rather than public providers. The main reasons for this were twofold. First, at some points in history Portugal itself had a lower per capita Gross Domestic Product (GDP) than its colony, and lacked public resources for development. Second, the Portuguese colonial regime was little interested in emancipating the peoples of its colonies (Cross 1987; Errante 1998).

In Macao, by the late-1980s it was clear that government neglect of education could no longer satisfy the social and economic needs of the global knowledge-based society of which the territory was increasingly becoming a part. The task at hand was considerable, and in the 1990s higher education in Macao was at an early stage of development. This reflected demand as well as supply. Because Macao's economy greatly relied on tourism and small labour-intensive industries, and because per capita incomes were lower, demand for higher education was more limited than in Hong Kong. On the supply side, before 1988 public investment in higher education was almost non-existent. To some extent the gap was bridged by the private sector, but only in 1981 did a group of entrepreneurs establish Macao's first modern university, the University of East Asia (Mellor 1988). In 1988, the university was purchased by the Macao government and became a public institution. In 1991 it was renamed the University of Macau.

Following the establishment of the Macau Polytechnic Institute in 1991, Macao's higher education system began to resemble the binary higher education system in Portugal (and also Hong Kong and the UK). The Macau Polytechnic Institute was created from the Polytechnic College which had been part of the University of East Asia. The Macau Polytechnic Institute offers diploma and bacharelato programmes, mainly in vocational subjects. The private Asia International Open University (AIOU) had a similar origin, having been formed in 1992 from the East Asia Open Institute which had previously been part of the University of East Asia. The AIOU operates in partnership with the Open University of Portugal, and offers distance courses particularly in business administration. Other institutions were set up to serve particular niches but, as indicated in Table 3.2, were all small.

Shortfalls in Supply of Qualified Applicants and Concern about Quality

During the mid-1990s, Hong Kong educators became increasingly concerned that the supply of adequately qualified secondary school students was insufficient to fill all the places in the fast-expanding tertiary sector. In systems of mass higher education, not only the outstanding but also the average students are admitted to colleges and universities. During the mid-1990s, many educators in Hong Kong queried whether the latter could fulfil the expectations and requirements of this level (J. Cheng 1995; Postiglione 1996b; French 1997). To maintain quality, most higher education institutions introduced extra-academic programmes to enrich their students'

competence. For instance, the HKUST, HKU, the two Polytechnic Universities and the HKIEd set up centres to upgrade their students' language competence.

To ensure that graduates meet international standards, the UGC has undertaken periodic Teaching & Learning Quality Process Reviews (TLQPRs) of all UGC-funded institutions (Massy 1997; Kwo et al. 2004). TLQPR panels examined the internal and external validation processes, peer evaluation and assistance, students' evaluations of teaching, and facilities for teaching and learning. The panels also examined informal communication channels between staff and students to see how well they supplemented the formal processes. In response to the demand for quality assurance, most of the UGC-funded institutions set up centres or units to improve the quality of teaching and learning.

In Macao, the shortfalls in supply of qualified applicants were caused not only by expansion of domestic institutions but also by competition by non-local providers. First were courses offered in Macao by external bodies. Statistics presented by Bray et al. (2002, p.27) showed fluctuation reaching a peak in 1998 with programmes offered by Jinan University, South China Normal University, Zhongshan University and other bodies. Second, institutions outside the territory, such as universities in Taiwan and Australia, attracted many Macao students. Most dramatic has been the expansion in Zhuhai, Macao's neighbouring city in mainland China. The initiative was spearheaded by Zhongshan University, which is a long-established and reputable institution which has had its main campus in Guangzhou but which in 2000 opened in Zhuhai one of the largest campuses in China. Other institutions which opened campuses in Zhuhai included Beijing Normal University, People's University, Beijing Polytechnic University, China Medical University, Jilin University, and Jinan University. These institutions actively targeted Macao as one source of students, which to some extent threatened Macao's own institutions.

Facing such competition, Macao's institutions realised the importance first of identifying their own specialisms and niches, and second of emphasising quality. Among the niches were studies which particularly focused on Macao, including programmes in education and law. Programmes on tourism, business and gambling were also of particular importance. Attention to quality assurance included efforts to expand international links (Bray et al. 2002, p.64).

University Structures

The nature of university structures has major implications for the allocation of finance, design of curriculum, and strategies for teaching and learning. Structures also reflect societies' educational aims, and affect relationships with global academic communities. For instance, structures may affect international recognition and facilitate or obstruct further study by students who wish to go abroad.

When the quality of university students in Hong Kong became a major concern of during the early 1990s, some Hong Kong educators suggested that the basic length of degree programmes should be extended from three to four years. For the CUHK, this would have been a reversion to the basic structure which the institution had between its establishment in 1963 and the 1991 change forced upon it by the government. The change or reversion to a basic four-year degree, it was argued, would facilitate

curriculum reform and strengthen general education as a supplement to students' major fields of study.

The argument about university structure was restarted by a report entitled 'Re-proposing the University Structure' published in 1996 by the Consultative Committee of the CUHK. The report stated that if the government refused to increase funding, the CUHK would rather accept fewer high-quality students than many low-quality students. The report also stated that a three-year degree structure could not satisfy the need to implement general education programmes which the CUHK had been pursuing in its curriculum. The proposal for a four-year university structure was echoed in a subsequent meeting of the heads of the eight UGC-funded institutions. Their request was stimulated by the growing concern about the quality of university education and the demand for a more liberal university education (Yung 2003).

Yet while many educators in tertiary institutions favoured a four-year structure and argued that the extra year would permit improvement in the quality of products, many educators in schools pointed out that the university sector already consumed a huge amount of resources and that an extended university structure would probably be at the expense of lower levels. In 1996 the government rejected the request for a four-year university structure, probably because of funding difficulties and the approach of the transfer of sovereignty. Education Commission Report No.7 (1997, p.47) proposed a review of the entire education system, since the education structures of basic and higher education were interconnected. In 1998, two working groups were set up by the Education Commission to focus on (a) primary and junior-secondary education, and (b) post-junior-secondary education. The first stage of the review focused on the educational aims of different levels of education.

An ad hoc working group convened under the Heads of Universities Committee (HUCOM) was also set up in 1998 to examine the issues associated with the proposal to extend the basic duration of undergraduate education from three to four years. The committee's consultation document proposed a 5+1+4 post-primary education system, i.e. five years of basic secondary, one year of senior secondary, and four years of tertiary. The document proposed to use Hong Kong Certificate of Education Examination (HKCEE) results as the basic criteria for admission to Secondary 6 and universities. Two-thirds of university places were to be reserved for HKCEE candidates, this ratio being subject to revision as the internal secondary schools appraisal system developed. The new admission requirements, it was argued, could minimise examination pressure on students because in one-year matriculation programmes they would not sit for any public examination and therefore could develop talents in other aspects (HUCOM 1998, pp.7-8).

By the end of the consultation period, only 20 responses had been received. Secondary school personnel remained sceptical about the 5+1+4 structure, and were particularly concerned about the interface between post-secondary and tertiary education. School principals feared that the proposed 5+1+4 structure would threaten the survival of the sixth-form colleges; and they pointed out that shortening of the matriculated curriculum would change resource distribution in secondary schools. It was obvious that there were divided opinions. The government decided to stall by preparing another consultation document in 1999.

In 2002, the UGC released a new report on Hong Kong higher education (Sutherland 2002). It suggested (p.9) that the government should encourage higher education institutions to adopt credit transfer and credit accumulation systems to allow

students to attend courses at different universities and enable free flow of resources among the universities. The report also advocated clarification of the division of labour between the universities. Echoing this advocacy, the Vice Chancellor of the Chinese University of Hong Kong, Arthur Li, opined that there were too many degree granting institutions in Hong Kong. In order to allocate education resources more efficiently, he suggested, the number of universities could be reduced to four or five through mergers. Li subsequently joined the government as the Secretary for Education & Manpower, and restated his views from that position. However, the notion of merging the HKUST with the CUHK, and the HKIEd with either of these universities, was controversial. Arthur Li backed off his initial suggestions, and in 2004 the UGC instead announced that it would take positive measures to facilitate and encourage "deep collaboration" as part of its institutional integration strategy (UGC 2004). The government also signalled a desire to move to a four-year basic degree structure at some point within the coming decade, as part of a 3+3+4 system.

Macao has also experienced a change of university structure. At the outset in 1981, the University of East Asia adopted a three-year basic structure. This was partly because the founders and administrators were mostly educators from Hong Kong, the UK and other Commonwealth universities, but was more strongly because the private university aimed to recruit not only local high school graduates but also applicants from Hong Kong, Malaysia, Singapore and other countries in the region which had education systems fitting a three-year university structure.

The change to a four-year structure began after the University of East Asia was purchased by the Macao government in 1988 (Hui 1994). The university became a public institution under the Higher Education Act of Macau. Thereafter, the basic degree structure of the University of Macau matched that of the 13 state and eight private universities in Portugal with which it had close relationships. This provided more convenience to study or work in some of the European Community countries. By chance, it also matched the structure in mainland China, Taiwan, Canada and the USA, but this did not have strong implications for the work of the University of Macau.

Funding for Higher Education

In 2001/02, Hong Kong's higher education system absorbed 26.0 per cent of total public expenditure on education and 1.1 per cent of GDP (UGC 2003a). This figure may be compared with the average for OECD countries, in which public expenditures on tertiary education averaged 1.0 per cent of GDP in 1999 (OECD 2003, p.183). Among the OECD countries, the lowest were South Korea and Japan which both stood at 0.5 per cent. However, these countries had large private tertiary education sectors. At the other end of the scale, Canada devoted 1.8 per cent of GDP to public expenditures on tertiary education, and Finland devoted 1.5 per cent.

Given the range of these figures, it is difficult to reach firm judgements about what the 'right' level of public expenditure might be. Hong Kong's higher education has traditionally been dominated by the public sector – to the extent, as indicated in the chapter by Hui and Poon in this book, that the government actively prevented some private entrepreneurs from establishing institutions. This is very different not only from such OECD countries as South Korea and Japan, but also from such countries as Philippines, Indonesia, Colombia and India (World Bank 1994, p.35). The Hong Kong

government did allow the Open Learning Institute (later called the Open University of Hong Kong) to operate on a self-funded basis following its establishment in 1989, but during the 1980s and 1990s the government seemed to move towards greater rather than less public funding for higher education by providing subsidies to the Baptist College and Lingnan College. Similar moves were evident in Macao, where, as noted, the private University of East Asia was purchased by the government in 1988 and then supplemented by other public institutions.

Within both territories, however, have been major policy shifts on student fees in public tertiary institutions. Internationally, policy makers are split into two major groups on this topic. Some argue that higher education benefits the whole society and so should be financed out of general taxation. Others argue that since individuals gain both financial and non-economic benefits from their education, they should contribute to its cost by paying fees. The latter group points out that governments can still provide subsidies in the form of grants or loans to help students who could not afford to pay the fees without financial assistance (Woodhall 1995, pp.427-428; Bray 2004a, p.39).

In order to cope with the growing cost, in 1991 the Hong Kong government decided on a substantial increase of fees on the principle that the beneficiaries should pay more (Chung 2003; Yung 2003). International survey highlights three main ways through which students can contribute (Williams 1996). First, they can pay fees while studying. Second, their studies can be free of charge but their subsequent taxes can be higher to help pay for their successors' education. And third, students can borrow while they study and repay when they are earning. The Hong Kong government decided on a combination of the first and third options. In 1992/93, students' fees represented an average of 8.2 per cent of the recurrent cost of their education. This proportion was increased to 18.0 per cent in 1997/98 (Table 3.4). The argument behind the policy was that tuition fees combined with student aid were more efficient than fee-free education, and more equitable because fee-free education often favoured the children of rich parents more than the poor (Bray 1993, p.38; Williams 1999, pp.151-157).

Table 3.4: Tuition Fees for Degree Courses, Hong Kong, 1992/93-1997/98 (HK$)

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Degree courses	$11,598	$16,996	$24,000	$30,568	$37,346	$42,096
Sub-degree courses	$8,993	$12,745	$18,002	$23,267	$28,002	$31,574
Rate of increase (%)	16.0	46.6	41.2	29.3	12.7	12.7
Cost-recovery rate (%)	8.2	10.5	13.5	16.0	17.0	18.0

Source: Hong Kong, Education & Manpower Bureau (1997).

In 1996 the government commissioned a management consultancy firm, Ernst & Young, to review the situation. The firm proposed two basic areas of change. First, was that on equity grounds the government should make financial assistance available to all students requesting it. The consultants proposed that any student should be able to borrow up to a ceiling based on the student's tuition fees, academic expenses and living costs. Any grant assistance received would be subtracted from the maximum allowable loan. Second, the consultants recommended an increase in the annual interest charged on loans from 2.5 to 4.0 per cent. Other recommended changes included extending the loan

repayment period from the first five years following graduation to 15 years, and reducing repayment amounts during periods of low or no income (Ernst & Young 1996).

The announcement of increased fees and the proposed changes in interest rates incited opposition from the students and the public. The government extended the public consultation period, during which it negotiated with student representatives. Finally, the Chief Executive (Tung 1997b, p.97) announced that a non-means-tested student loan scheme would be made available for all students. The new scheme would charge annual interest of 1.5 per cent plus the current civil service housing loan scheme interest rate. This formula was expected to allow the government to cover the cost of borrowing and defaults. The new non-means-tested student loan complemented the existing means-tested student loan. It became available to all 70,000 students on UGC funded programmes, 24,000 students on courses of the Open University of Hong Kong, and 3,000 students at Shue Yan College.

However, doubt remained on whether these provisions could meet all needs. Critics asserted that the vetting method for means-tested loans was unable to estimate accurately the assets and incomes of the applicants' families. Also, students considered the 8.2 per cent interest rate charged on the non-means-tested student loan – a rate which was based on the housing loan scheme for civil servants – to be rather high. Most students were reluctant to apply for non-means-tested loans unless they had no alternative, because they were worried about the burden of accumulated debt in circumstances of rising unemployment and economic downturn. Partly because of this, in 1998 the government announced that fees would be frozen at the level of the 1997/98 academic year. In the environment of economic recession and deflation, this policy remained unchanged for the next seven years.

The economic recession also worsened the government deficit, which in turn led to a real reduction of grants to UGC funded institutions in 2004/05 of approximately 9 per cent (UGC 2003b). However, the UGC did provide these institutions with a HK$1 billion matching fund to encourage them to seek funds from private sources. The debate about government funding became a political tug of war, with a majority of legislative councillors refusing to approve the budget unless the government guaranteed that there would be no further cut during the 2005-08 triennium budget. In response, the government proposed a funding formula of "0-0-X" for the 2005-08 budget, declaring that there would be no further cut in the first two years of the triennium but that if the economy deteriorated the government would cut up to 5 per cent in the last year of the triennium. With this compromise, the legislative council approved the budget. However, higher education institutions were forced to step up the process of marketisation in order to increase incomes and reduce costs. This process included offering more self-funded programmes, commercialising research products, reducing the number of non-academic staff, and contracting out some non-academic services such as catering, cleaning, security, building and maintenance to commercial companies. To a certain extent, public higher education institutions in Hong Kong were transforming into enterprising universities like their counterparts elsewhere (Williams 2003).

The private costs of higher education were also high in Macao. The annual fee for a full-time degree at the University of Macau and the Macau Polytechnic Institute was MOP56,000 in 1999/00, which was higher than in Hong Kong. However, all permanent residents of Macao were eligible for a 40 per cent fee reduction; and in the following years the institutions reduced the fees because of competition not only within Macao but also from neighbouring Zhuhai and elsewhere. Thus in 2001/02 the basic fee for a

bachelor's degree had been reduced to MOP32,000 (Bray et al. 2002, p.51). Also, needy students could apply for loans from the Macao government's Department of Education & Youth if they were prepared to work in Macao after graduation, and a few scholarships were provided by local charitable organisations.

Implications for the Future

Higher education developments in Hong Kong and Macao before the 1990s were slow relative to other industrialised societies, chiefly because of the lack of priority in government allocation of resources. During the 1990s, the sector achieved significant quantitative and qualitative progress in both territories. For policy makers, this was a great achievement. However, while students who would otherwise have been excluded benefited from expanded access, the increased private cost of higher education together with competition in the labour market diminished the benefits. Private rates of return declined, at least in the short term, and the investment in higher education appeared more risky from the perspectives of students and their families. Nevertheless, the long term social and individual benefits of higher education in relation to national economic growth should not be underestimated (OECD 2000; McMahon 2002).

The reversion to China of sovereignty over Hong Kong and Macao set the stage for further linkages between the territories' higher education institutions and those in the Chinese mainland. The participation rate in the mainland in the late 1990s was only about 2 per cent. Economic and social reforms in the mainland had already increased demand for highly educated personnel, and both Hong Kong and Macao were obvious locations for some of the necessary training. Both SAR governments were committed to the development of higher education in their territories. The Macao government commissioned a review of higher education in 2000, and released the report in 2001 (Bray et al. 2001). The report projected a vision for higher education development advocated strategic plans based on balancing priorities and finding niches. Hong Kong's review, released the following year (Sutherland 2002) recommended further expansion of community colleges and other restructuring to avoid overlapping of resources.

In terms of governance, Hong Kong's system of higher education system remained modelled on the dominant system in the UK, even after the 1997 change of sovereignty. English remained the medium of instruction in most institutions, and in the CUHK actually become more prominent. Most courses had the type of three-year structure followed in English (but not Scottish) universities. Although requests were renewed by universities to move to a four-year structure, the matter was not immediately settled by the government. However, plans were laid during 2004 for a 3+3+4 system which would take the last year out of secondary school and add it to higher education. In parallel, Macao's institutions of higher education maintained close links with counterparts in Portugal as well as mainland China and Hong Kong. The concept of 'one country, two systems' allowed policies in both Hong Kong and Macao to be decided by local educators, but academic cooperation with universities in mainland China education increased. At the same time, links with Europe did not imply continued ties to a fixed model. Thus, higher education was set to change markedly in the UK and Portugal, in line with the needs of the global economy and learning society (Scott 1995; Dearing 1997). Continued investment in human capital was clearly essential for maintenance of competitive edges in the global society.

From the perspective of continuity and development, higher education in both Hong Kong and Macao was incorporated into the global higher education system. This was greatly promoted by information technology, which speeded up the dissemination of knowledge extensively and effectively (Carnoy 1996; K.M. Cheng 1998; Spring 1998; Hargreaves 2003). Information technology in learning and teaching in higher education around the world has reduced the significance of national boundaries. Higher education has also become an institution of society and not simply an institution in society (Barnett 1994). In both Hong Kong and Macao, higher education is seen as essential for economic survival, not simply for welfare. Being members of the global society, higher education in these two territories will continue to converge with what Kerr (1982) called the huge global multiversity.