

A Consultant Report to
The University Grants Committee of Hong Kong

DIFFERENTIAL OR FLAT?

A COMPARATIVE STUDY OF

TUITION POLICIES IN THE WORLD

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I. Introduction

In the terms of finance, higher education is a human and money capital intensive good. Therefore since the emergence of higher education, governments, university authorities, students and their parents and society at large have tried in various ways to cover the costs of this expensive good. Charging fees for tuition was and still is one of the approaches to cover more or less of the underlying expenditure of higher education institutions (Johnstone: 1992, 1501). However, questions, such as “How much to charge?” and “how to pay?”, were raised time and again. At the start of the new millennium policy-makers and researchers face these questions again. To broaden the knowledge and information base for making a strategic and feasible tuition charging policy in higher education of Hong Kong, the researcher was asked to undertake an international comparative study by the UGC.

A. Terms of Reference

Since early 1980s tuition has been a hot topic in the worldwide debate on higher education reform. OECD scrutinized tuition fee policies of its member countries (OECD: 1990), the World Bank listed 33 countries with tuition charge in their public higher education institutions (World Bank: 1994, 42). Over 10 transitional countries and Commonwealth countries, such as China, Viet Nam, Mongolia, Australia, New Zealand and UK charge tuition fees in their public universities. Besides nearly 20 countries without private institutions originally developed tuition-charged private colleges. In such circumstances, tuition fee policies diversified, countries set up their own special policies favour to their special situation and priorities. The radical reform and special situation offered the researcher a large information base for the research project. The Project was handed down in the end of August 1999. The terms of reference of the project are:

- 1) Taxonomy of tuition fee policies in higher education;
- 2) Rationales and factors behind various types of tuition fee policies;
- 3) A comparative analysis on implementation of cost-based differential fee policies with implementation of other tuition fee policies, especially the flat fee policies;
- 4) A study of local factors which might have impacts on the future change of tuition fee policies in Hong Kong.
- 5) On the basis of the study, the researcher should give his personal views on future fee policy in Hong Kong.

B. Methods

The present project is a documentary-analysis-based study; therefore, a collection of latest and comprehensive data and information is the start-point and

precondition of the work. The researcher made most use of the internet and UGC's existing contacts with counterparts in Asia, Europe, and North America.

Historical analysis and comparative study approaches are the main methods adopted for data processing, taxonomy and hypothesis generation. Besides, interviews are broadly applied with local informants, including officials and experts in relevant government agencies and higher education institutions.

C. Structure

The study report consists of seven sections, including this introduction as Section I. Section II is a brief historical review of tuition charge in higher education in the world. Section III focuses on the rationales for differential tuition. Section IV discusses the basic considerations for unified tuition. Section V pays attention to student financial support approaches for ensuring equitable opportunity for higher education. Section VI concentrates on local conditions and factors in Hong Kong. And Section VII is researcher's personal views and recommendations on tuition fee policy reform in Hong Kong.

D. Executive Summary

The main findings and the relevant aspects of the comparative study are listed as follows:

- 1) Higher education in ancient Europe and China transmits three legacies to us.
 - Sufficient charge of tuition fees;
 - Minimum charge of tuition fees; and
 - Free of charge.
- 2) Free higher education dominated the world for a quarter of century in large part of the world on the base of state interest and human right.
- 3) Differential fees became the dominant trend in higher education finance in the reform since the 1970s.
- 4) There are 6 groups and 8 sub-groups of rationales supporting differential fees in public higher education. They are,
 - Differential fees by cost – by subject cost and by study level;
 - Differential fees by affordability
 - Differential fees by return – by private or social return;
 - Differential fees by residence – by local and outside students, and by domestic and foreign students;

- Differential fees by state interest;
 - Differential fees by quality and reputation.
- 5) Flat fee policies are still choices of some countries.
- National manpower demand – case of Singapore
 - Equal opportunity for higher education – case of Israel
 - Feasibility for the reform – case of UK
- 6) New devices for payment of tuition fees and student finance support
- The concept of delayed payment of tuition fees;
 - Income contingent loans;
 - Graduate tax;
 - National service; and
 - Education voucher.
- 7) Understanding Hong Kong's situation and factors
- Impact of expansion of higher education on tuition policy;
 - Distribution of students;
 - Existing relationship between unit cost of tuition fees;
 - Affordability to tuition fees;
 - Private return and tuition fees;
 - Human capital demand for the future.

8) Personal suggestions

There are three main personal views based on the findings of the comparative study.

(a) Now it is not the time to set up a differential fee policy in Hong Kong. The four reasons are:

1. “Brain drain” to low cost and high private return course;
2. Establishment of knowledge based economy demands science and technology manpower;
3. Specialty in undergraduate education is weakening in Hong Kong and the world;

4. A differential fee might not bring expected amount of tuition income, unless the level at 18% of overall unit cost substantially is raised.

(b) A partly differential fee policy might be adopted, in the framework the fees for medical studies could be raised to 8-10% of unit cost as the first step.

(c) If the SAR Government plans to enlarge higher education through the development of private higher education in near future, tuition charge would be different between public and private institutions and study fields. If it would come into being, student financial support policy would have to be reconsidered in accordance with tuition charge in private institutions.

II. A Historical Review on Tuition Fee Policies in Higher Education

In the terms of finance, higher education is a human and money capital intensive good. Therefore, since the emergence of European universities in the Middle Ages and the first establishment of Imperial College of Supreme Learning (*taixue*) in 124 BC, governments, university authorities, students and their parents and society at large tried in various ways to cover the cost of this expensive good. Tuition fees charging was and still is one of the approaches to cover more or less of the underlying expenditure of higher education institutions (Johnstone: 1992, 1501). However, questions, such as “How much to charge?” and “how to pay?”, were raised time and again. To broaden the knowledge and information base for the policy-making on tuition fees in higher education, this chapter starts with the exploration of the international evolution of tuition policies in a retrospective approach.

A. Ancient Traces in Tuition Charge

The huge documents on finance and history of higher education show that at least three ancient legacies on tuition fees transmitted to modern higher education. The three ancient legacies are, “charge of substantial tuition fees”, “charge of minimum tuition fees”, and “free of charge”.

(1) Charge of substantial tuition fees

This legacy came down from those early European institutions in the Middle Ages, such as Bologna, Paris, Oxford University (Joint Committee: 1908, 112). The students of Bologna University gathered the fees to hire teachers themselves. Paris University and Oxford University charged tuition and examination fees from their students (Cobban: 1988, 16-17, 309). Universities then were consumer demand driven institutions, they depended on students and not on government funding. It was because that university education was considered as a kind of expensive “service”, and university education, training and certifications were valuable for professional and civil servant career. Students as individual consumers had to pay the cost for enjoying higher education in ancient Europe (Ziderman & Albrecht: 1995, 5).

In ancient Paris, Oxford and Cambridge universities, churches, charity, kings, and wealthy businessmen formed a mechanism to help the poor students with scholarship, discounted fees, accommodation and meals and some work chances (Trio: 1984, 3).

(2) Charge of low tuition fees

Universities emerged a little bit later in Germany than in Italy, France and England. Having learnt from accumulated experience of the past, German governments and universities adopted some more systematic devices in this respect. Those devices included charging low fees to all the students and exempting part of fees for poor students. In this way German universities solved

the problem of student poverty, while they charged tuition fees in general (Cobban: 1988, 309-10).

This kind of approach became a German tradition and handed down to the modern era. Jarausch (1982, 40) found that the German government already bore 72% of the expenditure of university education in the early 19th century. Tuition fees paid by students reduced to only 10% of the instruction cost.

(3) Free of charge

Free of charge might be called a Chinese tradition. The first well-documented “Imperial College of Supreme Learning” (*taixue*) in China was established as a state higher education institution by an Emperor of Han Dynasty in 124 BC (Cai: 1982, 29). The royal court of Han Dynasty provided campus, buildings, teachers and all the recurrent expenditure fund, the central and local governments were ordered to select students according to their merit and virtue from all of the country (Sima Qian: Han Dynasty, *Confucian scholars biography 61*). Since then, almost all central governments in main dynasties established their Imperial College, appropriated funds for their expenditure and offered free higher education, free meals and accommodation, and even clothes to the talent students (Fen: 1994, 60-61). It was called “to foster and cultivate scholars” (“*yang shi*”) (Li: 1998, 1101).

The supporting rationale behind “to foster and cultivate scholars” with public funds was stated clearly in the *Annals of South Imperial College of Song Dynasty*. “Government spent great funds in supreme learning, and government obtained the well-educated manpower serving the emperor and the nation” (Huang: 1996, Vol. 1, 3). Through this financial mechanism, higher education was closely bound with the state interests in the feudal China for nearly two thousand years.

B. Policy Evolution in the Modern World

The French Revolution changed the world. Tuition charge policies became gradually a real government policy in Europe.

(1) Three milestones on the way to free higher education

In Europe, tuition-free higher education emerged during the Great French Revolution. It was recorded that Ecole Polytechnique in Paris offered 386 talented students free higher education with scholarships of 1,200 Francs (Barnard: 1969, 138). It was the start of state intervention in higher education in Europe. Ziderman & Albrecht (1995, 5) thought that state intervention on higher education finance had a clear rationale: to provide necessary administrative and technical manpower to facilitate the development of the new social system and modern industry.

The Bill of More General Diffusion of Knowledge written by Thomas Jefferson explained the new concept explicitly. Jefferson stated that, in order to promote the happiness of the people, government should offer free education to

those talented and virtuous persons who were “natural aristocrats” and cultivate them to be the civil servants who had the capacity to defend people’s civil rights and freedom. To discover and educate those talents with public funds was much better than to hand the people’s welfare to those means and wicked persons (Jefferson: 1984, 365).

A worldwide influential event in spreading the concept of tuition free higher education to all the students was the Soviet Revolution in 1917. The Revolution declared, “All students above the age of 16 have the right to enter higher education. The Soviet government provided free higher education, and grant to the poor students. Workers and poor peasants and their children should have the priority to enter universities (Bereday: 1960, 53).

World War II greatly changed the political conceptions of the world and also changed patterns of educational finance. Tuition-free higher education for all students became a democratic signal and an international appeal of human rights. *The Declaration of Human Rights* (1948) required, “Everyone has the right of education. Education shall be free, ... higher education shall be equally accessible to all on the basis of merit” (Tarrow: 1987, 237). *International Convention on Economic, Social and Cultural Right* (1966) declared in concrete terms, “Higher education shall be made generally accessible to all, on the basis of the capacities, by every appropriate means, and in particular, by the progressive introduction of free education” (Tarrow: 1987, 242).

By the end of 1960s all the socialist countries, Western European countries, most Commonwealth countries, and many independent countries in Africa carried on tuition-free higher education policies. Meanwhile, many of those countries offered generous grant to university students for various reasons.

Table II.1. Free Higher Education Systems in 1960s

Group	Number of countries	Examples
Western Europe	Over 10 countries	Germany, France, Greece, Sweden,
Soviet Socialist Bloc	14 countries	China, Mongolia, Poland, Soviet Union
Commonwealth	Over 10 countries	Australia, New Zealand, UK
English-speaking African	Over 10 countries	Botswana, Malawi, Uganda, Tanzania
French-speaking	Over 10 countries	Benin, Cambodia, Nigeria, Senegal

Source:

1. Woodhall, M. (1991) *Student Loans in Higher Education, 3. English –speaking Africa.*
2. World Bank (1995) *Priorities and Strategies for Education: A World Bank Review.*
3. Zhang, MX (1997) *Conceptions and Choices: An International Comparative Study on Student Financial Support Policies.* (in Chinese)

(2) Continuation of tuition fees

Provision of free higher education comprised the main feature of higher education finance in the world in the 1960s. However, some countries, especially those influenced by USA, persisted on their tuition charge policies with the belief

that higher education was not a real and total “public good”, and beneficiaries should pay at least part of the cost. Canada, Colombia, Japan, Philippines and South Korea and USA were typical examples. In Japan tuition fees accounted for 36% of the income of all higher education institutions in 1985. In the same year fees income took up 20% of Spanish institutions (OECD: 1990, 31). In South Korea, the income of tuition charge was equal to 40% of recurrent expenditure in public universities (World Bank: 1994, 42). And in USA fees made 23% of public institutional revenue (OECD: 1990, 31).

The interesting matter behind the tuition charge higher education systems was that higher education in those countries expanded much quicker than in those fee-free countries. They entered the era of “mass higher education” earlier than most countries with free higher education system.

C. Shift to Tuition Charge Policy Since the Mid 1970s

The world-wide economic crisis and recession started with Oil Crisis in the early 1970s pressed the governments both of developed and developing countries to scrutinize their public financial policies. The financial constraints and scrutiny put the reform of free higher education policy on the agenda. In the early 1980s tuition-free policies began facing serious attack and criticism from the following dimensions:

- Ineffective: if it was oriented to enlarge the equal opportunity to disadvantaged students (Blaug: 1971);
- Wealth flows from the poor to rich: as students from middle class families made up a large part of the student population, while students from low-income families were under representative for their population (Wran: 1988) ;
- Inefficient, the policy meant government and taxpayers were loaded with an over-heavy burden (Woodhall: 1991, 2);
- Students did not pay desirable cost for their benefit from higher education (Psacharopoulos: 1990, 157-162).

After two decades of debate on whether or not to levy tuition charges, more and more governments got rid of or partly gave up tuition-free policies. New tuition-charge policies were legitimated on the basis of cost-sharing theory (Johnstone: 1986), cost-return analysis (Psacharopoulos: 1985, 1990, 1994) and diversification of funds for higher education (OECD: 1990, 31).

Australia, China and UK were the well-quoted cases in educational policy journals (Wilson: 1996, 115-119). Australia established its well-known Higher Education Contribution Scheme in 1988, now tuition charge was equal to 23% of unit cost. China took a change step by step for 20 years. Since 1997 all the undergraduate students had to pay tuition fees. UK government started its new tuition-charge policy to its home students in 1998. In 1999 the tuition for home and EU students was £1,050.

D. Recent Innovations and Debates

In the first steps of the worldwide shift from fee-free to fee-charge policies, researchers and policy-makers in various countries paid much attention to building up new concepts, and to legitimate tuition charge policies. In practice, they tried the new policies with many debates and pilots. When the tuition charge concepts and theories were gradually accepted and won the legitimate status, researchers and policy-makers shifted their attention to two important matters.

(1) Approaches of tuition charge

In this aspect, some governments met a two-sided dilemma. On one hand governments and institutions tried to increase their tuition fee revenue. On the other hand governments and institutions must ensure the equal opportunity for higher education. Tuition charge should not become the barrier for the access of poor students. Policy makers knew that only when they overcome the dilemma, the new tuition charge policy would be effective. Therefore, various kinds of measurements to “delay the payment of tuition fees” and funding models (Ziderman & Albrecht: 1995) were designed and piloted in various countries. The report will discuss the related issues in Section V.

(2) Rational criteria of tuition charge

The second matter was to find and set up rational criteria for tuition charging. Since the middle of the 1990s this matter came onto the agenda of some governments.

New Zealand discussed the differential or flat fees (MCG: 1994). Some Chinese scholars began to discuss the matter in the top but small circle since 1995. Dearing Report (*Higher Education in the Learning Society*) 1997 in UK mentioned the choice between differential or flat fee. In the same year Singapore government launched a change from its differential fee policy restructured in the middle 1980s to a flat fee system. In February 2000 CVCP in UK reminded the people that a debate about differential tuition fees would start (CVCP: 2000, MR162).

The consideration on setting up rational criteria for tuition charging has its international context. Firstly, most new tuition charge scales set up in the reform were cost-sharing oriented, and their first priority was to increase fee income as much as possible in an immediate term (Colclough: 1990, 172). But many other important factors were either neglected or not considered enough in the reform process. Secondly, the knowledge-based economy, IT revolution and high-tech industry raised new challenges to higher education, to build up a learning society and to develop higher education for the learning society become a new incentive of higher education finance. All the countries try to find suitable strategies and special ways to win the new competition of knowledge economy. Thirdly, various shortcomings of existing tuition charge policies have come to the fore after several years of operation. The choice between differential or flat fees protrudes in the process.

E. A Brief Summary

The above historical review of the evolution of tuition policies in the world revealed at least the four points:

- (1) Tuition policies varied and still vary in the world. At the two extremes were “tuition charge to all the students” and “tuition free to all the students”;
- (2) Tuition policies reflect changes in the interests and priorities of the stakeholders, including the state, taxpayers, students, and higher educational institutions.
- (3) When higher education is considered or treated as a “public good” or a universal “human right”, governments would offer tuition free higher education or low tuition higher education. Where higher education is considered as a “service” or “investment” with economic return both for individuals and society, governments would design a tuition charge policy. At present higher education is mainly considered as the latter. Tuition fees are charged in most higher education systems.
- (4) One of the present focuses of attention is on setting up rational criteria for tuition charge for future. Having a rational choice between differential or flat tuition fees becomes a challenge to policy-makers in the new context.

III. Rationales for Differential Tuition fees

The two terms of “differential fee” and “flat (or unified) fee” have been becoming popular in higher education finance since the middle 1990s. The expressions are adopted to illuminate two different groups of tuition charge policies. One group of tuition charge policies refers to charging different categories of students on different tuition scales. The other is to charge various categories of students on the same scale. As a tuition charge policy is a functional consequence of various factors, a differential fee policy in a higher education system might embody several criteria, and a flat fee policy might also be supported by several reasons.

A. Diversification of Differential Fees

Generally speaking, most higher education systems operate some kind of “differential fee charge”. For instance, Singapore maintains a flat fee policy now, yet home students pay tuition fees at a slightly lower level than that paid by students from foreign countries. In Russia, over 75% of students in state universities still enjoy free higher education, yet the remaining 25% of students have to pay tuition fees average around US\$ 1,000-2,500 (OECD, 1999). And students in expensive private institutions have to pay fees equivalent to US\$ 4,000-6,000 (Kovaleva: 1997, 86). In the existing policy in Hong Kong, tuition fees for first degree courses and for most higher degree courses are the same, yet the tuition fees for sub-degree courses are around one-fourth lower. In 1999-2000 the tuition fee for degree courses was HK\$ 42,100, while the tuition fee for sub-degree courses was HK\$31,575. In the above consideration, this chapter concentrates on the basic rationales for the main part of differential fee policies.

Many higher education systems, such as the systems in Canada, China, Japan and USA, have several rationales supporting their differential tuition policies simultaneously, while some others, such as the systems in Australia and New Zealand, only adopt one or two dominant principles. No matter how many rationales and criteria are behind differential fee policies, the rationales and factors could be grouped into several categories. Based on the documents the researcher collected, the researcher found that there are six groups and eight sub-groups of rationales behind various "differential tuition policies" in public higher education systems in the world.

B. Differential Tuition by Cost

Differential tuition fee charge by cost is the most popular rationale and approach in the world. In this category there are two sub-groups of approaches.

(1) Differential tuition by subject cost

In some countries, Australia and New Zealand in typical, tuition fees were scaled differently according to the cost of study field, or in Johnstone’s word, “by program cost” (Johnstone: 1992, 1502). The existing Australian tuition scales was designed on 20% of the different unit cost of three groups of disciplines (Table III.2).

Table III.2. Tuition Scales in Australian Higher Education in 1988

Unit: Aus\$

Course	20% of the Unit Cost	Tuition Category	Tuition Scale
Medicine, dentistry, veterinary & agriculture	3,300-5,000	Category I	3,000
Pure science, applied sciences Engineering, technology, survey & Public health	3,200-2,300 3,000-2,500 2,500	Category II	2,500
Nursery, social service Humanity & social sciences Education & art Business management & Law	2,000 1,900-1,500 1,900-1,500 1,500-1,200	Category III	1,500

Source: Committee on Higher Education Funding (1988) *The Report*, p.xiii

In this approach all the students were publicly subsidized at a similar percentage of the unit cost for instruction, while all the students were asked to share the same proportion of the unit cost. But they pay different amount of tuition in fact. The three factors behind it are:

- (1) The average unit cost for different programs are different. Therefore, students as users especially in high cost fields such as medicine, dentistry, engineering and architecture should pay much more than the students pay in the low cost fields of social sciences, humanities, education and management.
- (2) In terms of financial support rate public subsidy is equally offered to all the students, no matter what disciplines they choose. In Australian case, all the students pay the tuition fees, equivalent to 20% of the unit instruction cost. In other words the government offered financial support to every student with an equal rate standard (80% of unit cost).
- (3) Differential tuition charge will generate more fee income to those countries and institutions that just shifted from fee free policies, or low fee charge policies.

(2) Differential tuition by study level

Johnstone found that tuition in US state universities are lower for the first two years, and higher for the last two years and usually still higher for postgraduate study. Courses in community colleges are often considered as the first two years of the four-year bachelor degree study, therefore, the tuition fees there are much lower. The Institute for Higher Education Policy (1999, 24) found that 32 states in US charged graduate students US\$ 500 more on average than undergraduates in 1999.

One of the reasons for such a differentiation is related to unit cost: lower division instruction, with usually larger classes and more extensive use of low-paid adjunct faculty and even graduate students. It is almost certain that the cost

of lower years in university is less than the cost of more advanced study (Johnstone: 1992, 1503). Thus, differential tuition by study level in higher education has got a solid cost base.

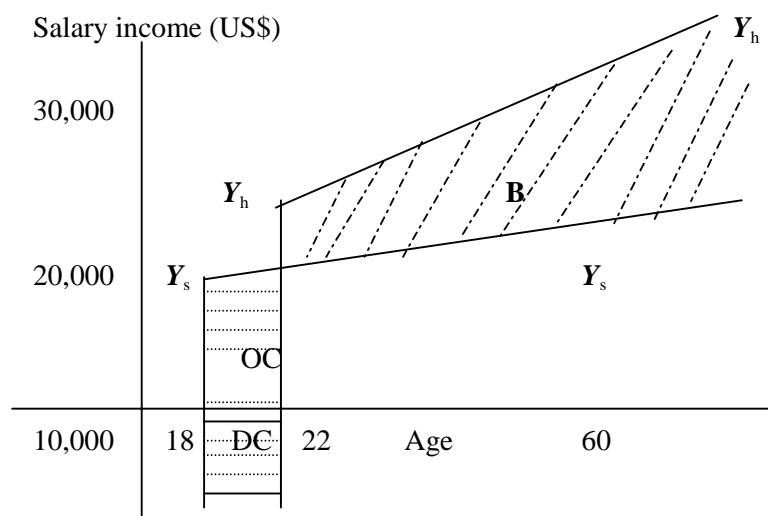
In addition, students who drop out after only one year or two probably receive less than proportionate returns in the form of career and income opportunities. Thus it may also be appropriate for those students to pay less according to the cost-benefit principle.

Finally, insofar as a low tuition is considered important to attract ambivalent students to attempt higher education, it may be reasonable to minimize tuition in the first one or two years. Prof. Johnstone, as both a policy-maker of the New York State University System and an expert in higher education finance, wrote about the rationales and this kind of differential fee policy with an appreciating tone (Johnstone: 1992, 1505).

C. Differential Tuition by Return

The differential tuition based on cost confirms that higher education is an expensive course, therefore, all the students who want to enjoy it have to recover some part of the cost. If so, a different tuition by return reveals why tuition should be paid by students. The core rationale of tuition charge lies in the belief that students would get the private return from their higher education. Students are “eventual beneficiaries” of higher education (Neave: 1992, 1356). Therefore, higher education is of an investment and value-aided industry, and students should recover some of the investment for their future benefit. Psacharopoulos devoted over thirty years to observation and analysis on the rate of return to investment of education. He drew the well-known chart to show the cost-benefit of education investment (Chart 3-1). Derived from this concept, policy-makers and students often linked to the expected earnings of graduates to tuition fees.

Chart 3-1. Costs and benefits of investment in higher education



Y_h = higher education Y_s = secondary education
OC = operational cost **DC** = direct cost **B** = benefits
Source: Psacharopoulos (1994a), p.1000.

A typical example was that students studying foreign languages, international trade and finance in public universities in Guangdong Province were asked to pay over 5,000-6,000 *yuan* in 1996. This tuition scale was twice as much as tuition for science and humanity students in the same year (Zhang: 1997, 382). Here, high private return in those disciplines came to be the most important factor in the tuition scale choice.

Another example is to set a low tuition scale for teacher training students. In Shanghai Normal University, students for teacher training paid only half (1,900 *yuan*) of the tuition (3,800 *yuan*) that paid by their classmates who did not commit to be teachers. In fact the two kinds of students sit in same classrooms and study same courses. The simple reasons behind are, (1) the average income of school teachers are still lower than that of other white-collar occupations in Shanghai, and (2) school teachers were still urgently needed by the community. In other words teacher training courses are low private return or low earning power but social-need courses in Shanghai (Shanghai Normal University: 1999).

Thus the return principle for differential fee charge is a two-fold principle. ON one side policy makers should pay attention to the rate of private return of higher education investment. If some disciplines would surely bring about extremely high private return or high income to the graduates in future, the tuition fees of those disciplines might be set at a higher level. On the other side policy makers should set the tuition at substantially lower level for those disciplines which bring about a low private return in general but with high social return or high social demand.

When this principle is adopted, policy-makers should also notice the phenomenon of the deviation between actual unit cost and private return. The disciplines like law, business management, foreign languages are low cost but high private return ones. Disciplines like physics, science and engineering are high cost but low private return ones. The scales of tuition fees for those two groups of disciplines should be set with other factors and in the special context.

D. Differential Tuition by Residency

Public colleges and universities are established and maintained by the public funds paid by taxpayers, and it is in justice that the institutions provide higher education chances firstly for local and domestic students. Thus differential tuition fees by residence emerged between local or domestic students and outside students. As outsider students and their families did not pay tax and had no contribution to the public foundation, they are generally asked to pay tuition fees at a higher level. In this rationale there are also two sub-groups.

(1) Differential Fees for outside students of a region in one country

In USA almost all the state colleges and universities have two tuition scales respectively for students whose families are in the state and out of the state. In the academic year of 1998 the average tuition for local students was US\$2,660 in 4-year state universities in Western states, while the average tuition was US\$6,945 for the out-of-state students (College Board: 1999, 6).

In China differential fee by residency emerged in the mid 1990s. Students from other provinces sometimes were treated as “commissioned students by other provinces”. They had to pay more for their higher education. For instance, Xi’an Jiaotong University is one of the 30 top universities in China. The university mainly enrolled students from central and western provinces in China according to the national manpower plan. Yet every year the University also enrolled around 100 students from Shandong Province outside of the national plan. Those students had to pay 3,000-4,000 *yuan* as extra “cultivation fees”, while the planned the students from western region paid only 1,000 *yuan* per academic year. Such matters happened popularly in other universities, especially universities in big cities.

(2) Differential fees for foreign students

In UK, the Conservative government raised the tuition fees scale for foreign students in the year of 1980. The tuition scale for overseas students was virtually to pay the “full cost tuition”. In the 1980s this policy was used as a measure to overcome financial constraints, but now many advanced countries adopt the policy as a way to make money in the international education market. Australia, Canada, New Zealand, UK and USA are active in implementing such tuition policies to overseas students.

Higher education institutions make profit between the theoretical full unit cost and the actual cost spent for those extra foreign students. Throsby (1997) accounted that the average actual cost per overseas student in 1994 was US\$ 2,600, but the full-cost tuition charge to those students was US\$7,500-8,000 on average in Australia. In such cases the differential fee policy for foreign students became an important strategy to make higher education a knowledge-based business and an “international trade” (Mallea: 1998, 1).

In 1996 Australian universities charged AUS\$ 1.3 billion tuition fees from overseas students, and USA received US\$ 7.5 billion (Mallea: 1998, 13, 15). In UK universities and colleges received £543 million from tuition fees paid by overseas students.

E. Differential Tuition by State Interests

Countries, such as Japan, Korea and China, have very strong traditions of keeping the national political and economic interest as first priority in higher education development. This priority impacted their tuition policies. The main forms of the realization of the national interests are:

- To set low tuition scales for the study fields with high cost;
- To set low tuition scales for the most prominent institutions with high cost.

China has suitable examples for both of the forms. For the first form, institutions of agricultural studies and mineralogical studies always charged lowest fees in the reform process, although the costs of these two fields were

much higher than those in business and humanities studies. In the second form, we can observe the different tuition scales between institutions maintained by central ministries and local institutions. Generally speaking, institutions maintained by central ministries, especially by the Ministry of Education are the top universities in China. They are called “key institutions” and “institutions in 211 projects”. The government appropriations to those institutions are much higher than others Their unit cost is much higher than that in other institutions. However, the tuition they charged is less than that of other institutions. Here is a table of tuition scales for different kinds of institutions in Guangdong in 1996.

Table III.4. Tuition Scales for Regular Higher Education Institutions in Guangdong Province 1996

Study Field	Category of Institutions	Tuition Scale (yuan)
Science/engineering/ Administration/social sciences	Institutions of State Education Commission	1,000-2,640
	Institutions of other central ministries	2,500-3,500
	Provincial institutions	3,000-4,000
	Local sub-degree colleges	3,000-5,700
Fine arts/performance arts/design	Institutions of State Education Commission	4,000-6,000
	Provincial institutions	5,000-8,000
International trade	Institutions of central ministries	3,000-4,000
	Provincial institutions	5,000-8,000

Source:

1. SEdC (1996) Circular on tuition fee scales for SEdC institutions(No. 1996-60)
2. GHEDB (1996) A Note on tuition fee scales for regular higher education institutions in Guangdong Province.

From this table we can clearly see that top universities charged least, while colleges of lower standard charged most. This kind of phenomenon will continue in China for a long time. The latest event was the Shanghai Municipal Government’s approval of some local institutions charging sub-degree vocational students tuition fees at the level of “quasi-full-cost” (SMG: 1999, 8). With this kind of differential fees the government tries to attract the most talented students for the long term and fundamental interests of the state. State interest as a term here is a much deeper and broader concept than the coverage of the term of “social return”. Differential tuition policy also reflects this kind of rationale in Japan. In Japan national universities charge least, local universities charge a little bit more, and private universities charge most. Therefore, tuition income made up less 10% of the income of national universities, the average tuition fee income of all public universities was around 18%, while the average tuition fee income of private universities could be as high as over 50% (MESSC:2000).

F. Differential Tuition by Affordability

When tuition fees are to be paid by parents and students, affordability of the tuition fees comes to be a problem to some proportion of students and their families. To offer all students equal opportunity for higher education, some

countries tried to charge different amounts of tuition to students with different income.

Philippines started to implement a “socialized tuition policy”. The core rationale of it was to charge tuition fees with different scales according to students’ family income. Zimbabwe designed similar systematic tuition scales.

Table III.5. Tuition Scales in Zimbabwe 1990

Unit: Z\$

Category	Family Annual Income	Scale by Cost	Actual Pay Scale
Category I.	< Z\$28,000	Arts 4,895	Not pay
		Science 5,531	Not pay
		Medicine 5,539	Not pay
Category II.	Z\$28,001-33,999	Arts 4,895	1,909
		Science 5,531	1,533
		Medicine 5,539	1,329
Category III.	Z\$34,000-39,000	Arts 4,895	2,741
		Science 5,531	2,437
		Medicine 5,539	2,534
Category IV.	Z\$39,001	Arts 4,895	4,895
		Science 5,531	5,531
		Medicine 5,539	5,539

Source: Woodhall, M. (1991) Student Loans in Higher Education 3. English Speaking Africa. Paris: IIEP.p.85.

Australian experts once discussed the possibility of designing a differential tuition system based on affordability. It includes four levels for tuition payment.

- The top 20% richest students pay a relative higher fee;
- The next 20% of students pay a lower fee;
- The next 20% of students pay a still lower fee; and
- The remaining 40% of students are exempted from fees.

But Australian Higher Education Finance Committee gave up the scheme since it was not feasible to operate in practice and it might bring about new conflicts (Wran: 1988, 25).

G. Differential Fees by Quality and Reputation

In USA different institutions charge different amount of tuition fees. In the region of Los Angeles University of California at Los Angeles charged most among public institutions (US\$ 11,119 in all including books, and accommodation). California State University at Los Angeles charged lower fees

(US\$ 8,358 in all) and City College of Los Angeles charged least (US\$ 2,707 in all) in 1994-95 (College Board: 1994-95). Besides the actual unit cost in different institutions, quality and reputation in the education market are important factors in the price-setting of tuition fees in USA.

In UK the Confederation of British Industry raised its suggestion on differential tuition in 1997. The basic principle of it was to let institutions to charge their own tuition fees according to their quality, reputation and market demand. In some measure college fees charged in Oxford and Cambridge also reflect the price of the institutions' reputation both in the market and society.

H. A Short Summary

From the above description and analysis we can see (1) differential fee policies were broadly adopted in various countries with various rationales and objectives; (2) the policies of differential fee by subject cost were also adopted by some countries. However, it is not the sole or main component of differential fee policies in some countries (Table III.6.). The latest data showed that some countries striving for the development of science and technology do not select the cost difference as their basic rationale for differential fees. In Japanese national universities, the average tuition fees for science/engineering and social sciences/economics/literature were similar. The former was 543,100 Japanese *yen*, and the later was 550,000 *yen* in 1996, in spite of 633,100 *yen* for medical courses (MESSC: 1999, 111).

Table III.6. Differential Fees in Public Higher Education Systems

Country	Differential Fee By							
	Cost		Private return	State interest	Residence		Institution reputation	Afford ability
	Level	Subject*			outside	foreigner		
Australia	✓	✓				✓		✓
China	✓		✓	✓		✓		
Israel						✓		
Japan	✓			✓		✓	✓	
Philippines	✓	✓					✓	✓
Singapore						✓		
UK						✓	✓	
USA	✓	✓	✓	✓	✓	✓	✓	✓

* Differential fees by subject here mainly refers to the difference between science and engineering studies and social science and humanity studies at first degree level.

IV. Reasons for Flat Tuition Policies

Differential tuition policies form the dominant trend in higher education finance in the world today, yet some states chose flat fee policies. Among them Singapore is a special case, as it shifted its differential tuition policy to flat tuition in 1997. Israel is another country that persisted on its “uniform tuition fees” for a long time. UK is a country that had several radical changes in tuition policies in the history. Today it implements a flat fee policy regardless the different cost in various study subjects. To answer “why to have flat fee policies in the three cases?” is the focus of present section.

A. National Priority in High-tech Manpower – Singapore Case

Singapore is a small city country with a population of 2.8 million. But its GNP per capita increased from S\$1329 in 1960 to US\$19,850 in 1993. Singapore was looked as a miracle in East Asia. In the process of rapid development, higher education in Singapore developed quite quickly. In 1970 the enrolment was 17,770, and the enrolment enlarged to 92,140 in 1996. It is equal to 38.5% of the age group (UNESCO: 1999).

(1) Substantial and differential tuition charge

In the period between 1984 to 1996 Singapore experienced a radical reform in higher education finance together with a massive enrolment expansion. The fundamental criteria and expectations of the finance reform included:

- (a) As both society and students enjoyed the social economic benefits of higher education, operating cost of higher education should be shared by the government representing the social beneficiaries on one side, and by the students presenting him/her self and their families on the other side.
- (b) Actual tuition paid by students should cover 20-25% of the course operating cost. In other words, the government promised to subsidize 80-75% of the cost in higher education (Shantakumar: 1992, 413-414);
- (c) As the costs in humanities courses, science and engineering courses and medicine courses were different, tuition fees paid by students should be different in various study fields.
- (d) It was unfair if the tuition paid by students was very low and it resulted in mass people providing grand subsidy to rich people (their children comprised the elite who were able to enter universities;
- (e) Too much public subsidy of higher education would take up the funds for other stages of education (Selvaratnam: 1994,82).

Based on those criteria and expectations, Singapore increased the tuition fees greatly with a three-fold differential tuition scales, respectively for “Non-lab-based courses”, “Lab-based courses”, and “Medical courses”. Tuition charge increased nearly 5-6 times in various subjects during the 17 years. For instance, the tuition paid by humanities students was S\$800 in 1980, it rose to S\$4,100 in 1996. In the same period tuition paid by science students rose from S\$810 to S\$5,150 (Selvaratnam: 1994, 83 & NUS: 1996, 26). In this way the rate of public subsidy to students in higher education declined from around 89% to 78% of “operating cost”.

Table IV.1. Cost, Government Subsidy and Tuition Paid by Students 1996-97

Unit: S\$

Type of Course	Operating Cost	Government Subsidy	Subsidy Rate %	Tuition Paid by Students
Non-lab-based courses				
• Humanity/social sciences	19,800	15,700	79.3%	4,100
• Business management	19,800	15,700	79.3%	4,100
Lab-based course				
• Architecture	24,100	18,950	78.6%	5,150
• Engineering	24,100	18,950	78.6%	5,150
• Sciences/ Computer	24,100	18,950	78.6%	5,150
Medicine/dentistry course	82,200	69,000	83.9%	13,200

Source: NUS (1996) *General Information*. Singapore: NUS, pp. 26-27.

(2) Rationale for the re-choice of flat fee

However, two unexpected shortcomings of the differential tuition policy gradually emerged. One was that talented students flew to those courses, especially business-related courses, because those courses were cheap in tuition but high in private return. The two universities in Singapore found that about 30% of students who took science courses successfully at “A” Level Examination chose to do other courses at the universities, even though the students themselves knew that they qualified to study Science and Engineering courses (Wong and Choo:1997, 30-31).

The other is the national lack of science and technology manpower, as science students drained out to the cheap courses. Dr. Cham, President of Nanyang Technological University pointed out that nearly 70% of students in its business and accounting departments were science students at “A” Level (Cai & Lin: 1997, 6). Deputy Prime Minister Tony Tan said sharply, “We do not want too many of our good science students doing law or business. We want them to go into engineering” (Tan: 1997, 1). This is a matter of the national future. In 1997 the Minister of Education began to emphasize that Singapore must establish a strong science and technology base. In order to make Singapore a developed country, the nation could not only be excellent producers for others’ products, but the nation must be able to invent and make their own products (Cai & Hou: 1997, 1). Therefore, more should be done to inspire interest in science and

technology among the limited population, especially among youngest in the small country with a population of 2.8 million people.

Facing the national demand for manpower in science and technology and the fact that secondary science students did not continue their science study in tertiary education, the government and two universities reviewed their tuition fee policies. The Joint Statement of the two mentioned universities pointed out, "Fees have to reflect national priorities". In the special time of high technology the nation "needs a technologically trained workforce for the high-tech manufacturing industries that are being established in Singapore". It is really pity that "the current higher fees for engineering and science courses are not in keeping with this strategic imperative" (Wong & Choo: 1997, 30).

Accordingly, "to attract enough excellent students to study science and engineering" came to be the first priority of the public higher education. It became the very reason that "the government shifts differential fees to flat fees" (Cai & Hou: 1997, 1).

In operation the government and two universities merged the three fold tuition scales to the same tuition for all the courses except medicine ones. The change of university tuition scales shows as follows:

Table IV.2. The Change of Tuition Policy During 1996/97 to 1998/99

Unit: S\$

Type of course	Tuition paid by Students 1996-97	Tuition paid by Students 1997-98	Tuition paid by Students 1998-99
Non-lab-based courses	4,100	4,900	5,500
Lab-based courses	5,150	5,450	5,500
Medicine & Dentistry	13,200	14,650	15,450

Source: NUS & NTU (1997) *Revision of Tuition Fees*, Appendix A.

(3) Food for thought

The Singapore's recent experience seems to offer some lessons for tuition policy makers. They are:

- (a) Tuition policy has a significant influence on students' choice, and students' choice has a significant influence on the future of manpower structure;
- (b) If two preconditions were satisfied, science students would give up their study in science and engineering, but do business or other courses. The two preconditions are: a) Tuition for art and business courses is low, and b) the rate of private return in art and business courses is high, or the income of humanity and business graduates is higher than that of science students.
- (c) For states or regions with a relative small population, it is especially important to attract enough qualified science and

engineering students in the era of knowledge-based and technology-intensive economy. Unified tuition for both science and humanity courses is expected to be an effective policy. Together with the change of tuition policy, the intake of university science and engineering students raised to 53.6% of the whole intake in 1998, while the rate of science and engineering graduates was only 45.7% of all the graduates in the same year (MoE: 1999).

B. Equal Opportunity for Students' Choice – Israel Case

Israel is a special country with a population of 5.98 million that had wars and conflicts with the surrounding countries for half a century. However, Israel is also known for its rapid economic growth and development in high technology and higher education.

Israel government shows that the GNP grew up from \$2.5 billion in 1960s and \$6.8 billion in 1970s, to \$ 98 billion in 1998. In the period from 1990 to 1996 the annual increment of GNP was 6%, the highest in OECD (Israel Government Homepage: Economics). The GNP per capita of Israel was \$ 16,400 in 1998. The percentage of engineers in the population of Israel is the world highest, with 135 engineers per 10,000 persons as compared to 85 engineers per 10,000 persons in the United States ((Israel Government Homepage: Science and Technology). The gross rate of higher education enrolment rose from 29.4% in 1980 to 40.9% in 1995 (UNESCO: 1997). And 38% of university students study in science and engineering related courses (Israel Government Homepage: Education) in addition nearly half of students study science related courses in teacher training colleges.

(1) A stable flat tuition policy

Israel has carried on a stable “uniform tuition” policy for a long time. The main contents of the policy is that all the home students except those sent by employers ("institutional students") pay the same annual tuition fee for their higher education regardless of study field and the sought academic degree. The uniform tuition scale was adjusted approximately every five years by a joint public committee which includes participants from universities, the National Student Association, the Ministry of Finance and the Planning and Budgeting Committee (the PBC) of the Council for Higher Education. The PBC is led by distinguished public figures who had no vested interests in the process or in the results of the committee's decisions. The decision of tuition scale traditionally took three basic factors into account:

- (a) The burden of tuition and other costs on the students and their families;
- (b) Operation cost of higher education institution. The total income from the students tuition fees accumulates to approximately 18% of all the income of the colleges and universities;

- (c) Link the tuition adjustment to the national cost of living i.e. to the Israeli General Price Index.
- (d) The current tuition fee for home students stands at the level about US\$2,500 (US\$5,900 for foreign students), and the sum of tuition income was equivalent to 21.6% of total expenditure and 20.7% of total revenue of higher education institutions (Herskovic: 1996, 171).

Table IV.3. Finance Structure of Israeli Higher Education 1992-93

Item	Total Expenditure	Total Income	Direct Fund	Ear-marked	Donation	Tuition Fees	Other Income
Amount	2,302,070	2,404,600	1,221,940	318,119	203,770	498,085	162,686
% of total income		100	50.8	13.2	8.5	20.7	6.8

Source: Herskovic, S. (1996), 171.

Since all the students paid a fixed tuition, the students' contribution in comparison to their real unit cost varies, the government subsidized public universities according to the format based on the government enrolment plan and unit cost in various study areas.

(2) Rationales behind the policy

Israeli officials pointed out that the rationale behind Israeli unified tuition policy is: To enable each capable student to choose the area of study,

- that the student is interested in,
- that he or she may come in without having to take in to consideration tuition fee costs,
- that he or she may excel if the tuition fees were differential (Stav: 1999,1).

They considered that differential tuition fees "could consequently cause the students to make decisions which would not be optimal" (Stav: 1999,2). Such consequence would neither be good to students' individual development and study, nor to the long-term interest of the nation as a whole. Thanks to the flat fee policies and some other policies, Israel kept a higher rate of science and engineering students (27%) in high education as compared with other member countries in OECD. For instance, the rate of science and engineering students was 24% in Belgium, 16% in Canada, 19% in France, 29% in Germany, 28% in Italy, 24% in Netherlands, 20% in Norway, 26% in Spain, 23% in Turkey, and 28% in UK (UNESCO, 1995, 152-153).

C. Operational Feasibility – UK Case

UK is a country has many great changes in tuition fee arrangement in the long history of higher education. To know its changes in the aspect will be helpful will increase dimensions in the policy making process.

(1) From tuition charge to fee free

As is mentioned in Section II, UK was one of first Western countries which set up tuition fees system in university education. Up to 1937-38 the income of tuition fees made up 32% of revenue of universities in UK. However, UK became a welfare state after World War II and the government became the main provider of the higher education resources. In the process tuition fees income declined to 11% of the total revenue of universities in UK in 1962-63. Even though the tuition fees were no longer paid by students themselves, but totally paid by the government through Local Educational Authorities since 1960 (Robbins Committee: 1963, 212). Thus all the full time degree home students, in fact, paid no tuition fees at all. Meanwhile students enjoyed generous grant offered by the government during 1960-1985.

(2) From fee free to tuition charge

Economic crisis and financial constraints since the mid 1970s made the Conservative Government and the society scrutinize the higher education, cut the public expense and reform the higher education finance. After ten years of debates and reforms, the Labour Government, the successor of the Conservatives, declared to charge tuition fees in 1997. The standard of tuition was set around 25% of the average institutional instruction unit cost. The actual tuition in 1998 was £1,000 per academic year, and it rose to £1,050 in 1999 (DfEE: 1999). Students and their families were asked to pay the tuition fees The government said that students are the direct beneficiaries with higher income and less unemployment, therefore, students and their families were asked to pay the tuition fees (DFEE: 1998).

(3) Choice between differential or flat fees

In the re-shifting process the government did not choose differential tuition on the base of subject cost, but took a flat tuition standard for all the disciplines and all the home students and students from European Union.

One of the main factors being the adoption of a unified tuition policy in UK was the consideration of feasibility. The National Committee of Inquiry into Higher Education (NCIHE or Dearing Committee 1997) earnestly considered an alternative differential tuition fee arrangement suggested by the Confederation of British Industry (NCIHE: 1997, 301).

Confederation of British Industry's scheme is a subject and institution based differential tuition scheme. It suggested that the government should set up average credit price for every subject, but universities could charge tuition fees according to their threshold learning outcomes in lower or higher prices to the students who chose their courses. NCIHE noticed the advantages in efficiency

and quality of education provision, however, NCIHE pointed out the approach would result in some problems and side-effects. The NCIHE Report mentioned, the differential fee charging would make “all institutions feel the pressure on the amounts to reduce in the unit funding”, and “able students be denied to an institution of his or her choice through lack of funds”. NCIHE concluded, “such differential fee charging is not a widespread feature of the system” (NCIHE: 1997, 301-302), NCIHE came to raise a recommendation to the government that is to set up a flat fee for all the subjects and institutions (except college fees in Oxford and Cambridge) (NCIHE: 1997, 300).

In consideration of the affordability and acceptance of students and their families, the UK Government designed a means-test scheme of tuition exemption. With the help of the scheme, the Department for Education and Employment estimated that one-third of students would pay the whole tuition fees, one-third would pay part of the tuition fees, and another one-third would in fact pay no tuition fees. After the means-test and “parents' contribution”, the Local Education Authority would pay the rest of tuition fees to the universities for the eligible low-income-family applicants who are residents in their territory. The basic principle of parents' contribution to their children's higher education is the higher the residual income, the more they should contribute. At the level of £30,000 of annual income, the parents should pay £1,313 (£313 for children's living). Below £25,000, the parents should pay £770. Below £20,000, they should pay £280. And below £16,000, they would have no contribution (DfEE: 1999, 14).

(a) Uncertain future

As the fundamental rationale of the UK flat fees is the feasibility, the tuition policy of UK government might be changed when a differential fee policy is considered easy to be legitimated and easy to implement. In February 2000 Mr. David Blunkett, Secretary of State for Education, made a speech on “Prepare higher education for 21st century” (DFEE: 2000, Online News). Mr. Blunkett did not touch on the tuition fee arrangement directly, but no one knows whether his new concepts of “Foundation Degree” course and “entrepreneurial universities” will change the flat fee or not. Anyhow, the coming one or two years will be crucial to the existing flat fee policy. Time will tell whether the flat fee arrangement in UK is only a tactical step of the reform or a long-term result of the reform.

D. Lessons From the Three Cases

The above three cases showed that countries might adopt flat tuition policies for various study fields because of certain priority considerations.

National (state) interest in manpower is the first priority for the flat fees. It is because there exists a deviation in cost and private benefit in various study subjects. The differential fee policy would result in a “brain drain” of science talents to business courses. While flat fee policy could be used as an attractive tool to keep them in science and technology.

To those countries and regions with a relatively small population, all the potential students in science and technology are treasure and limited resources for the nation, especially at the arrival of knowledge economy. They are worth encouraging to study science and engineering courses in every way, including flat fees. Both Israel and Singapore are relatively small countries in terms of population. And both of them try to keep their advantage of science and high-technology in the world economy. Therefore, it is a kind of inevitable choice for the two small countries to adopt a flat fee policy.

Equal opportunity for students' subject choice is another claim for flat fees in higher education. Although the rich students in high cost study fields take advantage of flat fees, the poor students would not be kept out of high cost and high return fields. One of the possible indirect results is to attract in maximum students to science and technology subjects. China carries on a differential tuition fee policy. However, in order to attract students to study science and engineering and keep the equal opportunity for students' choice in humanity, social science and natural science, the government kept a same scale for tuition fees both in natural science and social science. Only the top high return subjects such as performance arts, fine arts, business and some hot foreign language subjects are charged in a much high scale (MoE: 1998).

Table IV.4. Tuition Charge Scales in Institutions Maintained by MoE 1998

Category	Course	Tuition Maximum
Ordinary Study Fields	Science, engineering, social sciences, social science, and humanities	1,800 yuan
Special Study Fields	English, Japanese, and international trade	4,000 yuan
Art Study Fields	Performance arts, fine arts, and design	6,000 yuan

Source: Ministry of Education (1998), “Circular on Tuition scale for regular higher education institutions maintained by the Ministry of Education in 1998”.

Feasibility in management and stability for reform and development are often considered by policy makers. Peoples in different nations and traditions have different attitudes to tuition policies. No matter a reform from tuition free to tuition charge or a shift from flat fee to differential fee, all the radical changes in tuition fee policies should be acceptable to the society and feasible in administration. It is because that tuition policy in higher education is related to the interests not only of the students and universities but also of all the families with children in the age of formal education.

V. Mechanisms of Payment and Support for Affordability

As is mentioned in Section II, two of the latest hot topics in higher education finance in the world are to find some effective mechanisms of tuition payment and to find efficient approaches to support needy students. Some experts and international organizations already found with their empirical studies that tuition fees or tuition price impacts people's willingness to pay and their access to higher education, especially impacts the poorest 25% of people (Ziderman & Albrecht: 1995, 41-42, World Bank: 1995). Therefore, only when these two problems are solved, will the objectives of tuition charge policies be realized that institutions receive the tuition income and students are ensured to have equal opportunity for higher education.

A. Change of Concepts of Payment and Financial Support

In the aspect of designing effective approaches of tuition payment, the most important development is the concept of "delayed payment of tuition". Johnstone(1986), Woodhall (1990), Ziderman (1995) and some other scholars found that some university students are not able to pay the tuition fees in general, but only are not able to pay the tuition before they start their higher education and when they are studying in universities. Yet when they graduate and earn their salary they will be able to pay the tuition back. Tuition will take up a quite small part of their life income and of their private return derived from higher education, and policy makers could include students' capacity of tuition payment during their study and after their graduation into the set of tuition scale (Carlson: 1992, 3).

The change of payment concept led to the expansion of the nature of financial support. Based on the changes various kinds of "delayed payment" schemes were designed. Besides traditional government "gifted grant" and "mortgage type student loans" which met high rate of default of repayment in many countries, "income contingent loans", "graduate tax" , "national service" and "employers' repayment with contract" and "education vouchers" came into consideration and practice.

B. Income Contingent Loans

The essential elements of income contingent loans are the following two: (1) The repayment is related to graduates' actual income. Only when their income exceeds a certain threshold, usually the average income of a country, they should repay the loans for their tuition fees or living expense. That means when students get certain private return, they should pay back the cost of higher education. The higher their income is, the quicker they should repay the loan for tuition back. This kind of loans is much easy to be accepted by students and society. (2) Income contingent loans are managed by some government agencies, such as tax bureau, inland revenue authority or national security/ insurance

authority. Such agencies are most powerful in collecting national and public revenue. It reduces the default rate of repayment.

Australian Higher Education Contribution Scheme was a successful example of “income contingent loan”. The core of the Scheme was the establishment of the link between the requirement of tuition payment (cost) with the future income (return). And the repayment was managed through the national tax system. New Zealand, Sweden, and Ghana already adopted this mechanism, and UK is going forward to this direction.

C. Graduate tax

Another suggested scheme was “graduate tax” (Colclough: 1990, 172). As a device of “delayed payment of tuition fees”, “graduate tax” has some theoretical advantages. For instance, through the tax system governments could surely get back the investment of higher education. In this device no students pay tuition before they enter study, so that poor students would not have the pressure on tuition fees. In addition, government as the investor could legitimately gain the return of the investment through the tax.

Yet up to now no country really adopts a real “graduate tax” scheme. Yale University tried a scheme in 1972, yet it failed in the next year. There are for some crucial theoretical and operational shortcomings (See: Wilson: 1996, 115). For instance, “how to distinct who should pay the tax?” and “Whether the graduates are willing to pay the tax, if the amount is much larger than the cost or tuition they should pay?”.

D. National service

“National service” is a repayment of tuition in kind. The basic content is to ask the students who need tuition exemption or student loans to do certain kinds and certain amount work as their repayment. This kind of device emerged in some African and Asian developing countries (e.g. Botswana and Nepal) first, As some students were really difficult to repay their tuition fees. Yet Clinton raised his US plan of a national service in 1992. The plan gave loan borrowers a choice, repay the loans or “to serve the community as teachers, law enforcement office, health-care workers, or counselors” (Zhang: 1997, 127-128). Israel also carry on a national service program. In this program, if students devote their time to foster problematic and weaker school children arranged through the conjunction with the Ministry of Education, half of tuition fees can be exempted. In 1999 over 30,000 student joined this program (Stav: 1999, 1).

E. Education voucher

Education voucher is an attractive device both as an efficient “student-based finding mechanism” and an effective approach to student financial support in the recent tuition fee reform. Yet in fact, education voucher is not a new concept. It was advocated by Milton Friedman as early as in 1955. In 1962 Friedman put it into his well-known work *Capitalism and Freedom*. Since then

on education voucher attracted many scholars and policy-makers both from left and right. The basic contents of educational voucher include:

- (1) All the students are entitled a certain amount of financial subsidy offered by governments;
- (2) Students can choose to study in the educational institutions they like, private or public, with the voucher as part or all the tuition fees;
- (3) Institutions get government's public fund when they hand in the vouchers paid by their students;
- (4) Governments are guarantors of equal opportunity for higher education on one side, and buyers of higher education service of institutions.

The main expectations of "education vouchers" are four folded. The first is to ensure students' equal right of choice in education (without financial barrier). The second is to improve the quality and efficiency of education institutions. The third is to use ultimately the limited public funds. And the fourth is private institutions have the equal right to get public fund, if they offer high quality educational service.

Yet in practice, "education vouchers" did not win much significant success up to now. Wran Committee into higher education finance in Australia discussed the possibility of education vouchers in 1988. In 1997 another Australian committee, West Committee, raised a voucher or "student-centered funding" scheme again. However, Wran Committee itself selected the Higher Education Contribution Scheme finally. West's voucher scheme was defused by the new government in 1998 (Harman: 1999, 219-235). A Finland Consultant Team raised five "education voucher" schemes to the Ministry of Education, but Finnish government and society did not give an active response (Ahonen: 1996, 19-23).

Chile's scheme might be the sole nation-wide case. Since the reform in 1981, Chile government guaranteed students' right of choice among public and private educational institutions. At school education level, the government set the per-student subsidy, and all the students are entitled to choose the schools, public or private. The government paid the fund directly to schools on the monthly-student- attendance, although students and their parents would not really receive the education voucher (Taryn: 1997, 309). After 10 years, educational quality both in public and private schools improved. The number of private schools which received the public subsidy through the voucher mechanism rose from 1846 in 1981 to 2234 in 1989, while public schools suffered the loss of enrolment, and the number of public schools declined from 7830 to 5716 (Taryn: 1999, 310). At higher education level, the education voucher system worked in another way. It was only limited to 20,000 top senior secondary graduates per academic year. Only those top students were entitled the right to choose any institutions they like, no matter public or private (Ziderman: 1994, 1994). In this way the poor but talented students got the public subsidy to pay their tuition fees,

although the top students were not all the poor students. So it is hard to say the voucher device is equal opportunity driven approach in Chile's higher education system. It is more an efficiency and elite driven approach. To higher education institutions, it is a "student-based funding" or "indirect competitive funding". In order to win the competitive funding the all the public and private universities had to improve their quality and provide student-oriented service.

When the factors why education vouchers are not used broadly in higher education systems are inquired, several shortcomings are noticed.

- (1) It is an efficient approach to protect students' choice and to improve the effectiveness of higher education institutions, yet it is not a way at all to attract additional funds for higher education other than governments' appropriation.
- (2) It might be easy to adopt a voucher scheme in a limited group of students in higher education (e.g. Chile's experience, US veteran scheme for education and training and the latest small scheme for Ph D candidates in Australia). Yet it will be a very expensive matter to promise the voucher of covering tuition fees to all or a large proportion of the students. In fact voucher scheme is a kind of "publicly supported tuition entitlement" (Harman: 1999, 219).
- (3) Many side and unexpected effects might emerge to voucher schemes. Chinese people had a sad and painful experience in various kinds of vouchers for over thirty years.

VI. Factors to Tuition Policies in Hong Kong

Although few readers of the report need an introduction to Hong Kong higher education, yet it would be helpful to have a synthetic study on the factors related to policy-making on tuition charge in higher education.

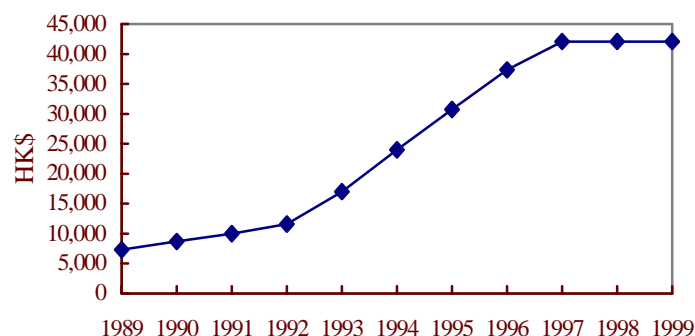
The past century of higher education development shows that Hong Kong has a long and unwavering tradition that students should pay tuition fees for higher education (Bray: 1993, 37), and in return higher education rewarded students with high salary, better job and social status. It makes possible for the study to focus on the choice of differential or flat tuition entirely. Hong Kong has carried on a flat tuition policy since 1975-76 academic year (UGC: 1999, 8). Before then the tuition scales in the two universities and the scales to the different study subjects were different. Both in the periods before and after 1975 some factors impacted the tuition fee policies.

A. Expansion of Higher Education

Similar to other parts of the world expansion of higher education is often an important factor of tuition policy change. In Hong Kong tuition fees kept rising together with the expansion.

In the period of the mid 1980s to the mid 1990s, Hong Kong experienced a dramatic expansion of higher education from about 2% of the age group in the end of the 1970s to 18% in the mid 1990s. The rapid expansion was the government target of higher education development. Meanwhile the expansion became the government argument to raise tuition fees to 18% of the unit cost, as the expansion was expensive and the government needed additional funds other than the increment of government budget (UGC: 1996, 161, 179). Thus, a pair of coordinate facts emerged. Full-time students in UGC (UPGC) institutions jumped from 16,135 in 1979-80 (Bray: 1993, 39) to 84,538 (by head account) in 1998-99 (UGC: 1999). In the similar pace the tuition charge scales rose from below HK\$6,000 (around 6% of the unit cost) (Cheng: 1993, 162) to HK\$42,100 (around 18% of the unit cost) in 1998-99 (Ernst & Young: 1996, 44). The tuition fee level has been frozen for the 1999-2000 academic year.

Chart VI.1. Tuition for Degree Courses in UGC-funded institutions 1989-1999



Source : UGC Secretariat

An interesting matter worthwhile mentioned is that the government had recommended that fees should cover at least 12% of recurrent expenditures as early as in 1973. For the next decade, however, this recommendation was never implemented. By 1982 the tuition fees at the University of Hong Kong covered only 3.8% of recurrent costs, while the fees at Chinese University of Hong Kong covered 5.8% (Bray: 1993, 37). The Director of Audit (1986, 10-11) blamed this failure on obstruction from the tertiary education institutions, on poor information flow on actual fees level and on lack of official persistence. All this happened in the time before the higher education expansion. But such situation changed immediately after the rapid expansion started in 1989. The tuition was set at HK\$8,700 in 1990. The tuition increased 16% over the proceeding year (Ernst & Young: 1996, 45). The shift from the fact that the low tuition fee scales untouched for years to the fact that tuition scale rising kept pace with the expansion was a forceful illumination of the impact of expansion of higher education on tuition fee policy in Hong Kong.

Then what will be the near future in the scale of higher education in Hong Kong? And are there any possibilities of another rapid enlargement of higher education enrolment which might pound the existing tuition policy in the coming years?

It is impossible to give any precise prediction in the uncertain and rapid change era. However, two trends are worthwhile to be noticed in tuition policy making. Firstly, the basic estimation to the enrolment of full-time students in UGC institutions in the first decade of the new millennium. Just in the eve of the turnover of 1997 UGC stated its prediction for the future. It is said, "Following this period of rapid expansion, Hong Kong's higher education system is now embarked on a period of consolidation" (French: 1997). The new SAR Government of Hong Kong had the same understanding, and the priority of higher education development shifted to quality improvement. In his first *Policy Address* Mr. Tung Chee-hwa (1997, paragraph 92) stated, "The tertiary sector has now entered a period of consolidation following its rapid expansion over the past decade. I have asked the University Grants Committee and the tertiary institutions to build upon existing strengths and invest in state-of-the-art facilities so as to provide programs which will be recognized internationally for their excellence".

Secondly, the new worldwide stimulation of the knowledge-based economy and the demand of learning society might bring about a new round of reengineering and restructure of higher education in Hong Kong. It might influence the existing policy. At present the SAR Government's expectation is to require higher education "to provide opportunities for everyone who aspires to higher education to attend programs appropriate to their abilities" and "to establish a diversity of institutions" for meeting learners' choice (Education Commission: 1999, 18). However, up to now the researcher has not found any plans or suggestions on expansion of full-time degree students in the coming future.

B. Student Distribution by Subject

Student distribution in a certain society comprehensively reflects students' attitude of personal development, students' value judgement on various courses for future career also the social demand on human resources in future. Therefore ideal structure and ratio of student distribution by subject was often a significant indicator in higher education financing. Besides the ratio of actual distribution by subject, the attitude and achievement of the students entering various subjects should be taken account in this sub-section, as this indicator is related to the quality of students in various subjects.

(1) Actual student distribution by subject

The intake, enrolment and graduates in natural science (science, engineering and computing) made up 44.9%, 43.9% and 38.3% of total numbers in Hong Kong in 1997. If the students in architecture, medicine and pharmacy were included in science and engineering, science students exceeded 50% of the university students.

Table VI.1. Intake, Enrolment & Graduates of Universities 1997

Field of Study	Intake		Enrolment		Graduates	
	Number	Rate(%)	Number	Rate(%)	Number	Rate(%)
Accountant	1244	8.9	3887	8.4	1133	8.7
Arch/BEM	523	3.7	1764	3.8	461	3.5
Arts	3200	22.8	10952	23.6	3779	28.9
Business	2097	15.0	6789	14.7	2064	15.8
Computing	990	7.1	3460	7.5	1044	8.0
Dentistry	50	0.4	200	0.4	40	0.3
Engineering	3790	27.1	11692	25.2	2234	17.1
Law	244	1.7	1007	2.2	284	2.1
Medicine	239	1.7	1014	2.2	187	1.4
Pharmacy	121	0.9	379	0.8	129	1.0
Science	1515	10.7	5165	11.2	1727	13.2
Total	14013	100	46309	100	13082	100

Source: Based on UGC (1998) *Statistics on Intake, Enrolment & Graduates of Universities 1997*.

The science and engineering student ratios of Hong Kong are quite high in comparison with the ratios in advanced Western countries. However, the ratios are lower than the corresponding ratios in China, Israel (including science students in teacher training), Korea and Singapore. The data in *World Education Report 1995* shows the difference among the mentioned countries (UNESCO: 1996, 152). The Singaporean rate of science and engineering students rose to 52.3% of total university enrolment in 1998 (MoE: 1999).

Table VI.2. Distribution of Undergraduate Students by Study Field in 1992 (Unit : Percentage)

Study Field	China	Hong Kong	Israel	Korea	Japan
Education	24*	7	41*	7	8
Humanities/Social Sciences	19	34	25	44	58
Science/ Engineering	47	35	27	40	28
Medical Science	10	5	6	6	6
Total	100	100	100	100	100

* In China and Israel nearly **half** of students for teacher training are majored in science.

Source: UNESCO (1996) *World Education Report*. Oxford: UNESCO Publishing.

(b) Student choice related to A-Level achievement

The existing external examination result is not really a good indicator to measure comprehensive development and quality of students, however, it has to be adopted as a tool of evaluation in the study.

In Hong Kong university entrance standard is related to students' achievement in the Hong Kong A-Level Examinations. All applicants are required to take the "AS-Level Examination" in two subjects: "Use of English" and "Chinese Language and Culture". In other words the "AS-Level" achievements in the two required subjects forms the threshold of higher education. The "A-Level" scores in other subjects are the condition for entering in competitive subjects. The more of the subject examinations a student takes, and the higher of the scores a student win, the higher of the possibility for him/her to be admitted in competitive disciplines. In this way "A-Level" achievements were treated as the indicator reflecting the relationship between students' choice and their academic achievements of their secondary education. The UGC counted the data of A-Level Examination result every year.

Table VI.3. Average HKALE* Score of Intakes by Subjects 1995/96 – 1998/99

Entry Score of Full-time Degree Course Intakes	1995-96	1996-97*	1997-98	1998-99
Average HKALE score of entrants via JUPAS ⁽²⁾	10.4	10.3	10.5	10.7
Medicine	15.9	16.9	17.6	17.7
Dentistry	9.8	11.8	14.0	13.9
Studies related to health	8.8	9.7	10.5	10.8
Biological sciences	8.3	7.7	8.1	8.4
Physical sciences	7.6	7.4	7.9	8.1
Mathematical sciences	8.3	8.5	9.1	9.7
Computer & information technology	10.0	9.7	9.9	10.3
Engineering & technology	10.4	10.8	10.8	11.1
Architecture and town planning	12.8	13.7	14.1	14.3

Entry Score of Full-time Degree Course Intakes	1995-96	1996-97*	1997-98	1998-99
Business & management studies	10.9	10.6	10.6	10.8
Social sciences	11.2	11.0	11.0	11.2
Law	12.1	12.7	13.2	15.0
Mass communication & documentation	12.7	12.0	12.0	11.5
Language & related studies	9.4	9.8	10.0	10.4
Humanities	10.7	9.2	9.8	10.0
Arts, design & performance arts	9.2	10.0	9.2	9.4
Education	8.3	8.2	9.2	8.1

* HKALE score refers to Hong Kong A-Level Examination score.

Source: UGC (1999)

The average HKALE score of university degree course intakes kept around 10 in the past few years, but the gap in average score between majors was quite big. The highest average score was always in the major of medicine, the lowest kept in education. It is worthwhile to notice that the average scores in some science subjects, such as biology (8.4), physics (8.1), mathematics (9.7) and computer and IT (10.3), are below the average score in 1998-99. While the average score of business course intakes kept just above the average score of the whole. Obviously the future employment expectation led some of high score students to the study fields of business and law courses.

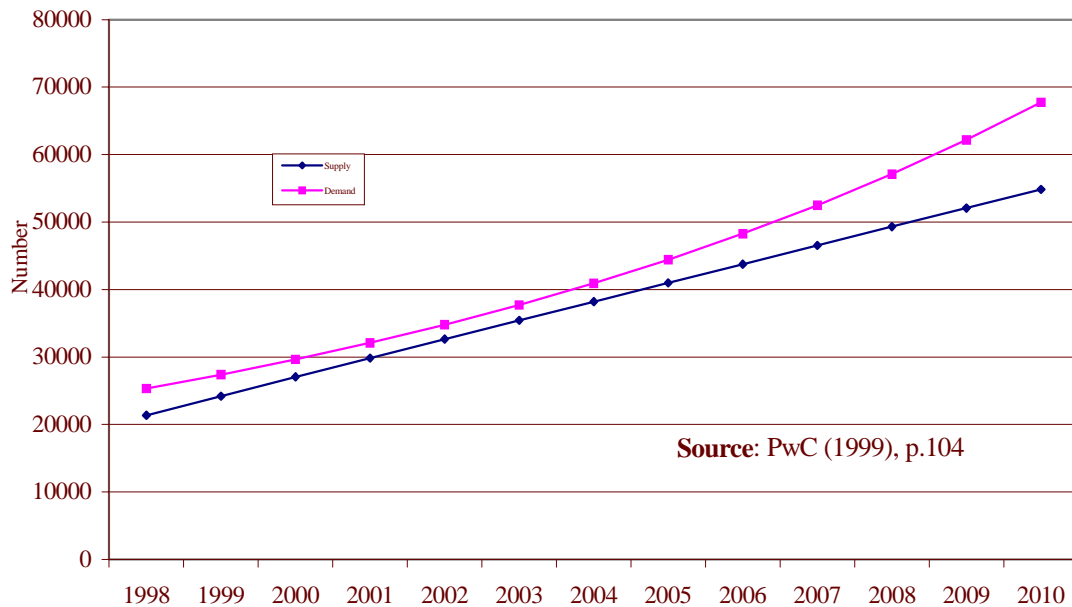
C. Human Capital Demand of Hong Kong

In order to turn Hong Kong into a knowledge-based and technology-intensive economy, the Chief Executive's Commission on Innovation and Technology (CECIT) recommended "that Hong Kong continue to invest heavily in education and training. The community should do more to inspire interest in science and technology among young people. Apart from this, Hong Kong must attract talents from other places to build up its intellectual capital" (CECIT: 1999, 20). To realize the two objectives, the Committee suggested, in direct and concrete, "to attract more students to take up courses in science and technology fields" and "to increase the number of our science and engineering students, including some of the best, pursuing graduate research studies with a view to a career in R&D" (CECIT: 1999, 21).

IT Manpower and Training Needs Study by PricewaterhouseCoopers (PwC :1999) for Education & Manpower Bureau forecasted that IT industry development need a great number of well educated, trained and prepared manpower in the period of 2000-2010. But the problem is that the gap is quite large between demand and supply of the IT manpower in Hong Kong. The Study Report provided three calculations on the IT demand-supply forecasts, conservative, moderate and greatest ones. Based on its conservative calculations, the Report pointed out, (1) there is a current under-supply of IT degree graduates of approximately 3,200, and (2) the under-supply of IT graduates will increase to 3,500 in the year 2005 up to 12,900 in the year of 2010 (PwC: 1999, 105). The

Study Report also suggested the Education and Manpower Bureau adjust the higher education place and attract more students to IT related subjects.

Chart VI.2. Gap Between the Demand of IT Graduates and the Supply



The Chief Executive’s Commission on Innovation and Technology noticed that the number of university applicants to the science and technology streams increased overall by 20% in 1999 (CECIT: 1999, 22). The Committee expected to keep the further increment of science and IT science students in the coming years.

D. Unit Cost in Higher Education

Recovery of a substantial part of unit cost in higher education was one of the most popular rationales for tuition increasing and differential fees. In Hong Kong the existing tuition charge scale was set at the level of 18% of overall unit cost in 1991. The 18% has no firm and logical foundation although the recent international experience showed that 15—25% of unit cost or 20-30% of recurrent expenditure of higher education are acceptable in many countries. For instance UK settled the 18% as early as by the well-known Robbins Report in 1963 (although the tuition was paid by local education authorities for the students then). Japan set the scale between 15-20% for public institutions. Australia’s Higher Education Contribution Scheme required to pay 20% of the unit cost, and the average tuition charge was at 17.2% of the unit cost in 1995 (Jiang: 1996, 3). The Chinese government target tuition in 2010 will be equivalent to 25% of unit cost. Some World Bank (1995, 107) experts thought tuition fee could recover 30% of recurrent cost, and the scale in 15-30% of unit cost would be accepted by the society, if with some effective needy student financial support schemes.

The term of unit cost itself and its calculation remain controversial. The rates mentioned in various countries are very general figures. In fact the gaps of actual unit cost between subjects and institutions are much bigger than that in common sense. In Hong Kong the unit cost for medical study was 4.7 times as

high as that for humanity study and 3.5 times as high as the average of all study programs in 1992. In 1997-98 academic year the unit cost of medical studies was 2.6 times as much as the actual average humanity unit cost, and 2.34 times as much as the average unit cost for all the programs.

Table VI.4. Unit Cost of Degree Course by Academic Program 1992-1997

HK\$'000

Academic Program Category (APC)	1992-93	1997-98
1. Clinical medicine	447	566
2. Clinical dentistry	493	614
3. Pre-clinical studies	238	
4. Subjects & professions allied to medicine & dentistry	116	250
5. Biological Sciences	197	314
6. Physical Sciences	165	290
7. Engineering & Technology	127	260
8. Building Environment/Architecture & Town Planning	107	227
9. Mathematical Sciences	120	231
10. Information technology & computing science	113	215
11. Business & management	101	190
12. Social sciences	111	208
13. Law		188
14. Mass communication & Documentation		215
15. Languages Related Studies	100	201
16. Humanities	129	217
17. Art, design & performing arts	117	248
18. Education	128	212
All APCs	129	241

Note: Breakdown figures by level of study are not available.

Source: UGC(1999) "Unit cost by APC and by institutions 1992/93-1997/98" (unpublished).

Although the average tuition was equal to 18% of the unit cost of university degree courses in Hong Kong (The tuition was HK\$ 42,100, and the average cost was HK\$ 241,000 in 1998), the gap results in the difference of public subsidy to different subjects. In 1997-98 the government paid 94% of the unit cost for educating a medical student, but only 73% of the unit cost for educating a humanity students. That means the medical students only paid 6% of their unit cost, and humanity students paid 27% of the unit cost (UGC: 1999, paragraph 9.2).

Partly because the big gap between the overall average unit cost and the actual unit cost in various subjects and partly because the real needs for quality teaching in various subject, the UGC designed the "range of relative cost weightings" for the assessment of recurrent grant allocation for every study subject. The weighting for clinical medicine is 5.4, the weightings for science and engineering is between 3.8(Biological science) to 1.5 (Computer and IT), the weightings for social science, business and humanities are between 1.6 (social

science) to 1.2 (humanities) (UGC: 1996, 138). Among them the weightings for mathematical science and computer and IT and the weightings for social science and business are very close (± 0.1 point). According to this weighting standard just 50% of the 44,000 first degree students who studied in business, social science, computer and IT and built environment subjects in 1997 (UGC: 1999) were subsidized almost the same.

E. Affordability of Students and Families

Tuition fee affordability of students and families depends mainly on the collective functions of four factors besides the general economic situation and the level of GDP per capita. They are tuition fee level, family income, fee payment and financial support and student income after graduation. This sub-section focuses on the situation in Hong Kong.

(1) Tuition fee level

Tuition charge in Hong Kong once took up a quite high rate of 16% of the total recurrent cost, Hong Kong University in 1962 (Bray: 1993, 41). Yet the tuition charge reduced to only 3-6% in the 1970s and early 1980s, and university students only took up 2% of the age group, fee affordability was not a big problem in the society then. Even though government set up a grant and loan scheme for needy students to overcome the possible financial problems in 1969.

However, tuition affordability became a problem which attracted a great concern of students, parents and society at large in the process of rapid tuition increment in 1990s. The tuition jumped from HK\$6,000 in the mid 1980s to HK\$42,100 in 1997. The average annual increasing rate was nearly 25% in the 8 years from 1990-1997. In 1993-94 the tuition charge increased 46.6% over the last year (Ernst & Young: 1996, 45). As there were 16,600 households with full-time university students whose monthly income was below HK\$ 10,000 in the mid 1990s (Ernst & Young: 1996, 100), the applicants of government student financial support increased over 4 times from 9,591 applicants in 1989 to 40,860 applicants in 1995. Meanwhile the sum of government's grant and loan increased from HK\$130.8 million (85.37 million for loans) in 1990 to HK\$1,556.3 million (806.1 million for loans) in 1995 (SFAA: 1996, 1-2).

In the last two years the financial crisis started in 1997 harmed the general economic situation of Hong Kong, the tuition charge was frozen at the level of 1997, while non-means-test loans were introduced for students. In 1999 31,961 students of 65,459 eligible students (48.8%) received the government mean-tested financial support with grant and loan or loan only (SFAA: 2000, Statistics).

(2) Household income

In Hong Kong the affordability is calculated based on household income. That means not only the income of parents and students themselves are calculated, but also income of other family members, although the approaches of calculation to the incomes from different family members are different. In recent years around 48% of students received government's mean-tested support. Ernst

and Young once had a survey for the government in 1996. It revealed that there is a great difference in household income between students' families in Hong Kong. It reminds us that all the tuition policy change should pay great attention on students' affordability and appropriate financial aid schemes.

Table VI.5. Income of Households with Full-time Tertiary Students

Monthly household income (HK\$)	% of the total households with the students	No. of household with the students (A)	No. of household with persons aged 17-22 (B)	% of household with aged 17-22 persons with the students (A/B)
50,000 or over	4%	2,700	16,000	16.88%
40,000-49,999	5%	3,300	15,400	21.43%
30,000-39,999	11%	7,800	39,600	19.70%
20,000-29,999	21%	14,900	93,500	15.94%
15,000-19,999	18%	13,100	73,200	17.90%
10,000-14,999	19%	13,400	75,500	17.75%
8,000-9,999	7%	5,000	25,400	19.69%
6,000-7,999	4%	2,900	13,400	21.64%
4,000-5,999	3%	2,300	7,000	32.86%
2,000-3,999	6%	4,100	5,000	82.00%
0-1,999	3%	2,300	3,000	76.67%
Total	101% (rounding)	71,800	367,000	19.56%

(3) Fee payment and financial support

At present there are three ways of tuition payment in all.

- (a) "Front payment by students and their parents". Nearly 60% of students who were eligible to apply for government financial support did not get any government grant for paying tuition fees in 1999 (SFAA: 2000, 1). In other words, the 60% of students paid the tuition fees mainly by themselves. Besides, the average amount of grant was HK\$28,347, equal to 67% of tuition charge in that academic year. That means most students who received the grant paid some certain part of their tuition fees. Therefore, front payment of tuition fees are the main way of tuition payment in Hong Kong.
- (b) "Government grant". The government financial support to needy students in Hong Kong is composed in three parts. Grant for tuition and other study fees, means-tested loans (annual interest is 2.5% in 1999) of HK\$22,103 in average per year for living expenses (SFAA: 2000, 1), and the newly-born non-means-test loans (annual interest is 8% in 1999) capped at tuition fees. Grant was an important way for most needy students to pay tuition fees. Grant

ensures that no students would be barriered by financial difficulties in Hong Kong.

- (c) “Delayed payment by student loans”. The newly-born non-means-test loan scheme is targeted to the students who are not eligible to receive grant or can not get enough grant. The loan scheme is designed with the top-up level of tuition fees. It is obviously that the designers and government try to encourage people to have higher education with the delayed payment by this kind of student loans. Up to now there is no good statistics on the borrowers of this non-means-text loan. Besides, some students used the means-text loans to pay their tuition, but not to pay their living expenses according to government’s objective.

All the adjustments of tuition charge policy in Hong Kong will need the support of student financial aid policies, as over 48% of students pay their tuition fees with the help of government grant and loans. If differential fee scheme is attractive, the existing financial support schemes should be changed first.

(c) Income of graduates

Graduates’ income in life as a kind of private return decides students’ willingness to pay tuition fees. Graduates’ income also impacts students’ financial capacity of repayment of student loans. In the late 1990s the average entrance salary of first degree graduates was HK\$155,000 a year (UGC:1999). After five years of work the average annual salary income came up to HK\$352,000 to HK\$415,000 (excluding the average income of medical graduates) (Ernst & Young: 1996, 104). According to the 20-time instalment of the loan repayment in the first year years of graduation, the students who borrowed average amount of means-test loans repaid HK\$3,500 every quarter from their salary for the proper and interest of the student loans. The quarterly repayment was equal to around 10% of graduates’ monthly salary. The repayment is not a heavy burden to graduates in Hong Kong. This is one of the main reasons that the default rate of loan repayment was very low in Hong Kong (Bray: 1993, 41).

F. Return of Higher Education

Up to now the researcher did not find any systematic analysis on the rate of return in higher education investment in Hong Kong. Up to now A study on rate of return to education for the Education Commission is still under wraps. However, government's statistics on the entrance salary by education level, by subject and by occupation gave us some clues to see the difference between the rate of return by education level and in various study subjects at first degree level.

(1) Entrance salary by education level and occupation

In 1997 Hong Kong Industrial Relations Association and the Wing Lung Bank International Institute for Business development, Hong Kong Baptist

University conducted “a joint survey on Hong Kong payment level”. The following table showed a main finding of the survey.

Table VI.6. Starting Monthly Salary for Fresh Graduates 1996 (HK\$)

Education Level	Engineering	Production	Marketing	Sales	IT	Finance	Admin.
Form 5	6,700	6,590	6,620	6,600	6,820	6,720	6,630
Form 7	7,356	7,390	7,370	7,400	7,550	7,380	7,380
Diploma	9,120	9,120	9,050	9,300	9,540	9,050	8,930
Bachelor	11,100	10,890	10,770	10,910	11,170	10,950	10,710
Master	12,010	11,940	11,880	12,160	12,450	12,190	12,150

Source: Hong Kong Industrial Relations Association & The Wing Lung Bank International Institute for Business Development, HKBU (1997), p.31

The shortcoming to the present study is that the survey concentrated on payment of industries and did not cover the payment of some services, such as the payments of civil servant, teachers, doctors and lawyers, etc. Yet, the survey findings revealed three main points closely relevant to the present study. The difference of starting salary between different education levels exists obviously in Hong Kong;

- (1) The difference of starting salary between occupations was not significant in industries, excluding salary between occupations in various service, such as clinical doctors, teachers and civil servants;
- (2) Graduates working in IT field seems to have a little bit higher average salary among the occupations in industries.
- (3) The average starting salary of the university degree graduates was around 1.63 times as high as that of the Form b5 graduates in industries in the late 1990s.

(2) Difference of graduate salary between study fields

The UGC-funded institutions undertake annual surveys on entrance salary of graduates in higher education. The survey findings, as reported to UGC, show three important facts. (1) the salary of medical students got highest entrance salary (HK\$328,000 in 1997-98), it almost doubles the average salary of all the fields (HK\$166,000). The entrance salary of undergraduate medical students was 2.14 times as much as the average salary of all the undergraduate students. (2) The salary of education students got the second highest entrance salary, it is almost 40% higher than the average salary. (3) There is no significant difference between the average entrance salaries of science, social science, humanity and business graduates.

Table VI.7. Average Annual Salary of Full-time Employed Graduates by Level and Fields of Study 1997-98

(Unit: HK\$'000 per annum)

Field of Study	Level of Study			
	SD	Ug	Pg	All Levels
Medicine, Dentistry & Health	152	337	421	328
Sciences	169	148	237	159
Engineering & Technology	133	155	220	156
Business & Management	121	140	289	139
Social Sciences	172	151	257	170
Arts & Humanities	192	155	358	172
Education	220	237	263	232
Average in All Fields	165	158	258	166

Source: UGC(1998) *Graduate Employment Survey 1998*.Annex G.

(3) Life income of graduates by subject

Ernst and Young conducted a *Consultancy Study on the Local Student Financial Scheme* for the government. It did an analysis on graduates' life income by subjects. From it we can insight the basic character of graduates' life income in Hong Kong.

- The life income of secondary teachers (B.A. and B.S. students) is high start salary but low in later;
- The life income of business graduates is low start but high in later,
- The life income of medical students is top high start salary and also top high in later.

Table VI.8. Annual Income of Graduates by Subject and Occupation

Unit: HK\$'000

Year	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th
B.A./B.S. Teachers	216.0	244.0	275.8	311.6	352.2	397.9	449.7	508.2	574.2
B.B.A. Accountants	130.0	169.0	217.9	296.6	415.2	498.3	548.1	602.9	663.2
M.B.B.S. Doctors	368.7	581.2	608.6	697.8	730.8	764.1	1,800.	1,299	1,346

Source: Ernst & Young (1996), p.104.

(4) Return Factors impacting fee policy

From the above three groups of data on graduates' income and the data on unit cost, three trends should be considered when tuition policy is to be adjusted.

Medical study is a field that is both a top high cost and top high return field. But up to now the students only bear 6% of unit cost.

The relationship between unit cost and private return is not necessarily affirmatively correlative. Business and law studies are low cost subjects with high private return, while science and engineering are high cost subjects with uncertain and frequently low private return, occupation of the graduates will impact greatly on their private return.

If a subject differential fee policy is to be adopted in the special case that it follows a flat fee policy with 18% of overall unit cost, the extra tuition revenue for higher education institutions might not be as large as expected. It is because institutions will lose the extra tuition income from the students in the subjects with low actual unit cost. At present the amount paid by those students is equivalent to 27% of their actual unit cost. Students in those subjects composed half of first degree students.

VII. Personal Suggestions

The comparative study on tuition policies in the world offers me much food for thought. Based on the findings in the study, the researcher has three humble suggestions.

(1) **Flat tuition for both national sciences and social sciences courses in UGC institutions**

It is the time of differential fee policies. Differential fees are strongly supported by many theories, “cost-sharing” “rate of return”, “user pays principle”, the income of differential fees are urgently demanded by institutions and governments all over the world. People designed many mechanisms for implementing differential fee policies. These are the real facts. Yet, they will not be sufficient reasons for policy-makers to make a decision in a special context. In my personal opinion, at least now, it is not the right time to shift flat fee policy totally to a differential fee policy in the present UGC higher education system. There are four reasons.

- “Brain drain” to low cost and high private return studies. Business study is low cost and high private return one in Hong Kong. At present business study attracts a largest group of students (12,000 in 44,000 undergraduates), and the average achievement in science courses of the business student are even better than that of science students. I wonder if more better students will go to business study, when the differential fee policy emerges based on cost of subject in Hong Kong.
- Transition to a knowledge economy urgently demands manpower of science and technology, especially in a region with only 6.8 million population. The priority should be to strive in every way to attract young people to study science and technology.
- Specialization in undergraduate education is weakening. The EC’s *Review of Education System: Framework for education Reform* recommends that “Bachelor programs ...should be less of a specialised nature” (EC: 1999, 18). OECD also reminded policy makers in higher education should pay attention to this international trend (OCDE: 1999). Business study will have more science elements and science and engineering students will have to learn more about the knowledge in social science and business management. Differential fee by the cost of subject will meet such challenges.
- Without raising the 18% of unit cost to a substantially higher level (for instance to 25%), a differential fee policy would not bring a large amount of extra income for the government and higher education institutions

(2) Higher tuition for medical studies

However, a “partly differential fee policy” might be a compromise proposal. In a partly differential fee policy framework, tuition fees for medical science could be raised. That is a high cost and high return field. As a first step, the tuition fees might be raised from 6% of actual unit cost to 8-10% of the actual cost for medical studies. The high repayment capacity of medical students could be accounted in tuition scale for medical science. It would be a feasible proposal, and policy makers would have sufficient reasons to go the step from various dimensions of cost-benefit assumption, affordability consideration, increment of tuition income and legitimacy of the society.

(3) Further consideration for higher education expansion with private institutions

Besides the above personal suggestions, the researcher wants to point out [E1]that all the comparative studies and suggestions were restricted in the framework of public higher education systems. Therefore, if the Hong Kong SAR Government tries to expand higher education enrolment through the way of diversification of higher education institutions (EC:1999), especially through the development of private institutions in the near future, there will surely be some kinds of differential fees by public-private nature.

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