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FUNDING HIGHER EDUCATION IN MALAYSIA

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Funding Higher Education in Malaysia

By

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Abstract

As the higher education system contributes significantly towards sustaining long-term economic growth in Malaysia, adequate funding should be directed to this subsector. Moreover, policies need to be impartial and stringent scholarship selection mechanism be used. Ongoing reforms to enhance the quality of tertiary education may also be important. Keywords: Higher education; funding methods JEL Classification: I21, I22, I23, I28

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I. Introduction

In the early 1970s, higher education was entirely dominated by the public sector. During this period, the government provides absolute funding towards public universities and thereby, keeping tuition fees low in order to increase accessibility for all students. It was not until 1996, when there was a policy shift to deregulate higher education and to encourage private sector participation in the higher education subsector. Several factors motivated this, such as the twin deficits problem of the 1990s, huge depreciation of the currency during the 1997-98 Asian financial crisis, the Vision 2020 policy, and external influences from the advanced economies. Although the government relinquished its role as the sole provider of higher education, it continued to regulate and monitor the performance of this subsector. The private sector mainly operates on investment incentives with little or no public funding.

The aim of this paper is to evaluate Malaysia's experiences on policies pertaining to financing higher education. Both public and private sources of finance are discussed. It should be highlighted that data on financing higher education in Malaysia is limited. While data on government development expenditure on education is available from 1970 onwards, no disaggregated data is available on the higher education system. Moreover, data on scholarships allocation is only available annually from 2000 onwards. There is no official data on the repayment of student loan, however. According to an industry expert, the level of repayment is roughly 20%, and there is no effort in making this number higher due to sensitive issues.

The paper is organized as follows. Section II describes the functions of the government in transforming the Malaysian higher education system. The characteristics of the higher education industry are assessed in Section III. Section IV discusses the funding of higher education in Malaysia. The paper concludes and provides some direction for future research in Section V. Appendix A provides a list of key education directives in Malaysia. A special case study on a recent private higher education provider is the subject of Appendix B.

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II. Functions of the Government

Overview

In general, the government can play four different roles in the context of higher education. During the early stage of economic development, the government may serve as a supplier of higher education. The government constructs the necessary infrastructures, allocates funds to institutions of higher learning, and provides monies for scholarships, student aid, research and capital expenditures. At the same time, the government may also protect the rights of the students by improving access to higher education, formulating policies to uphold social equality, and by ensuring the quality of academic programs.

As the economy matures, the government may act as a regulator of higher education. The authority warrants oversight of new and emerging institutions through institutional accreditation and program licensing. Lastly, the government may function as an adviser to the higher education subsector by ensuring goals and results consistent with government objectives. Most governments are interested in affecting the behavior of institutions of higher learning to attain certain aims, such as efficiency, distribution, and social targets.

Early Stage of Development

From early 1960s to mid-1990s, the government was the sole facilitator of higher education. The government provides funding to all public universities via budget appropriations, and lump-sum funding for development and capital expenditures. As consumer defender, the government subsidized all public institutions to ensure low tuition fees. Moreover, the government offers scholarships and study loans to low-income students. The government also implemented an ethnic quota system for student admissions to ensure that the ethnic composition of the student body in public institutions reflects that in the general population. This admission policy is aimed at promoting social equality through higher education, especially for the Malays who are recognized as the disadvantaged group in the country. On average around 30% of the development budget targeted at the education industry is allocated to the higher education subsector. Government support for higher education has declined over the 1990s, due to fiscal constraints in meeting the rising needs of higher education. Prior to 1996, political economy constraints on government revenue led to increases in other budget needs, notably that of infrastructural spending, which partially crowded out higher education appropriations. This situation is aggravated by the effects from the Asian financial crisis of 1997-98, which led to lower funding on higher education, and in turn, poorer quality of public institutions.

To alleviate this problem, the central government decided to renounce its role as the key supplier of higher education. The government encouraged public universities to seek alternative sources of funding. For example, five public universities were granted higher institutional autonomy in 1998. Greater autonomy includes financial management, competitive remuneration of academic staff, and adopting strategies to raise efficiency as well as quality. To generate revenue, public institutions of higher learning may recourse to research contracts, consulting, business linkages with appropriate industry clusters, and other categories of investment. Some universities have also increased tuition fees at the graduate level in order to cover their operating expenditures.

Later Stage of Development

Apart from deregulating public universities, the government also encouraged the establishment of independent higher education institutions by the private sector. With the implementation of the Private Higher Education Institutions Act of 1996, the private sector increased its involvement in providing tertiary education. Private higher education institutions consist of colleges, foreign branch campuses, information technology academies, open universities, university colleges, universities, and virtual universities. The Act gave private institutions of higher learning to establish franchises and degree courses. Notably, private educators were encouraged to offer science and technology courses in order to increase enrolment at higher educational institutions, and to produce a larger number of highly skilled graduates. The Act also defines the regulatory function of the central government over all private education facilitators in Malaysia. Approval must be obtained from the Ministry of Higher Education to setup a private institution or to introduce new courses.

To improve coordination between public and private sectors, the National Council on Higher Education was formed in 1996. The council also performs planning, formulating, and determining national policies as well as strategies. It is envisaged that the private sector will complement efforts of the public sector in providing more vocational and technical education. In 1996, the National Accreditation Board was created to formulate policies on standards and quality control, as well as accrediting certificates, diplomas, and degrees awarded by private institutions.

The government intends to give the Malaysian higher education a unique feature by mandating the use of national language in all courses conducted at private institutions. To teach a course in English, private institutions must seek permission from the Ministry of Higher Education. All education institutions must provide Islamic studies for Muslim students and moral education for non-Muslim students. Overseas students are also required to undertake courses on the national language. These courses are targeted at transmitting cultural heritage and national identity to the students.

In summary, the government has deregulated the higher education industry with a move towards more market-oriented policies. Nevertheless, the authority continued to oversee the higher education system in terms of assuring quality and maintaining a certain degree of accountability. Moreover, the government still maintains an advisory role in ensuring equal access, consumer protector, and national identity.

III. The Higher Education Subsector

Overview

The Malaysian education sector has been used as a tool to unify the country and to sustain long-run economic growth since 1957.¹ Consolidation of the national education system was initiated by the Razak Report of 1956 and the Education Ordinance of 1957. (See Appendix A for the full list of education directives.) Furthermore, it was anticipated that the national language will be the medium of instruction in all levels of education. Creation of a unified method of evaluation as well as a Malaysian curriculum was also expected. These measures were refined and culminated into the Rahman Talib Report of 1960 and the Education Act of 1961. These reforms emphasized the *3R* basis of education, whereby reading, writing, and arithmetic are of utmost importance. Moreover, it also indicated a strong spiritual based education with the desired elements of discipline. The reforms proposed to extend the number of years of basic education from nine years to eleven years for all school-aged students. Upper secondary education will consist of two streams – academic and vocational. Finally, to improve the quality of education, it was suggested the adoption of a set of education management procedures.

Later, the New Economic Policy was launched in the early 1970s, to bring about a balance enrolment according to the general population. This new policy resulted in a rise in the number of Bumiputra students in all educational levels (see Young, Bussink, and Hasan (1980)). The education industry was further enhanced through the passing of the Education Bill in 1995. The national education system, based on the principles of the National Education Policy, is designed to produce world-class education from the aspect of quality to attain

¹ The study on the relationship between the education sector, human capital accumulation, and economic growth can be traced back to the work of Uzawa (1965) and Lucas (1988). Lucas (1988) formalizes the framework of Uzawa (1965) using a two-sector endogenous growth model to show a positive impact of education on steady state output growth. In endogenous growth models, countries with higher level of education (as measured by initial human capital stock) tend to grow faster subsequently, for a given initial level of per capita income. See for example, Becker, Murphy, and Tamura (1990), Jones and Manuelli (1990), Romer (1990), Rebelo (1991), Mankiw, Romer, and Weil (1992), Easterly (1993), Mulligan and Sala-i-Martin (1993), Barro and Lee (1994, 1996, 2000), and Tamura (2002). As most countries have attained primary education, it is routine to measure the level of education using either the average number of secondary or tertiary school years in the total population aged 15 and above (Barro and Lee (2004)).

Vision 2020. Pre-school education will form an integral part of the national education system. Technical and polytechnic education will also be upgraded. In addition, government allocations will be provided for the supervision of private education institutions.

In general, the Malaysian education industry comprises of six years of primary school, three years of lower secondary school, and two years of upper secondary school. Hence, every citizen is given eleven years of basic education. Higher education is restricted to fortunate citizens of the country. Performance in the public examination, known as the *Sijil Pelajaran Malaysia* (SPM), which is taken after the eleventh year of school, determines whether Form V students can enter post-secondary education – Form VI. The government has also encouraged students to study in the United States, the United Kingdom, Australia, Canada, and Japan prior to 1997. This measure is intended to enhance knowledge creation among local students and to solve the limited places issue in Malaysian education system. However, this approach has led to large services deficit in the balance of payment (see Ministry of Finance (1987)).

The enactment of the Universities and University Colleges Act in 1969 set the pace for the establishment of public universities. Subsequent stage of establishment began in the 1980s to mid-1990s. Despite this phenomenal, the number of public universities has been limited. This led to reforms in higher educational policies in both public and private sectors since the mid-1990s.

Key Features

The higher education system in Malaysia consists of public and private institutions, polytechnics, and community colleges. Public and private higher education institutions provide certificate, diploma, undergraduate degree, and postgraduate degree. Certificate and diploma levels are for students from the age of 17 with SPM. Undergraduate studies, such as, the Bachelor's degree is usually for students from the age of 19 or 20 onwards with post-secondary qualifications, such as, the *Sijil Tinggi Pelajaran Malaysia* (STPM), pre-university, or foundation qualifications. These courses usually take between 3 to 5 years. Upon completion of the undergraduate studies, students may progress further to postgraduate courses, namely, Masters or PhDs degrees. Public higher education institutions cover universities and university colleges. Private institutions encompass universities, university colleges, colleges, overseas branch campuses, open universities, virtual universities, and information technology academies.

On the other hand, polytechnics offer certificate and diploma as a source of semiprofessional workforce. Community colleges provide full time academic programs and short courses, based on the request of the local community. The Ministry of Higher Education was founded in March 2004 with the responsibility of augmenting strategic direction and regulating the development of the higher education subsector.

Under the auspices of the Ministry of Higher Education, two separate bodies are in charge of quality assurances in public and private institutions. The National Accreditation Board, which was established in 1996, is the quality assurance agency for private institutions of higher learning. The Quality Assurance Division, which was formed in 2001, is responsible for public universities, polytechnics, and community colleges. The Quality Management Units of institutions coordinate other activities, such as academic programs, libraries, administration, and management systems. Auditing exercises are also performed externally by professional accreditation bodies, such as the Malaysia Medical Council, the Public Services Department, and the Engineering Accreditation Council.

In 2007, the National Accreditation Board was superseded and renamed the Malaysian Qualification Agency. The agency implements the Malaysian Qualification Framework, which acts as a platform for quality assurance in the higher education subsector. The agency unified all quality assurance systems for the public and private higher education institutions, as well as the training and skill-based providers in the country. Thus, the agency enhances the quality of higher education in Malaysia with the intention of achieving the status of educational excellence in the region. The agency reports to the Ministry of Higher Education, which has the power to appoint its members that consists of both official and nonofficial representatives.

Under the Malaysian Qualification Framework, a unified system which binds and connects all qualifications awarded in Malaysia, and acts as a reference point for all national qualifications. The framework classifies qualifications according to nationally agreed criteria and international good practices, for levels of learning attained by the learners. All qualifications are based upon four classifications, namely,

- a) Learning outcomes;
- b) Credit;
- c) Objectives; and
- d) Field of study.

In turn, the Malaysian Qualification Framework also created eight levels of qualifications in four subsectors of education. The four subsectors of education are

- a) Skills and training subsector;
- b) Vocational and technical subsector;
- c) Life-long learning subsector; and
- d) Higher education subsector.

The eight levels of qualifications are differentiated according to the learning outcomes that capture the general characteristics or competencies in various domains of learning that students are expected to demonstrate upon successful completion of a course or upon an assessment of competencies. The eight levels are:

- a) Levels 1 to 3 These are the levels for skill certificates awarded in the skills training programmes, as well as the vocational and technical certificates awarded by polytechnics;
- b) Levels 4 and 5 These levels are for diplomas and advanced diplomas respectively, awarded by the technical and vocational sector as well as the skills sector;
- c) Level 6 This is for the first tertiary qualification, namely, the Bachelor's Degree with Honors;
- d) Level 7 is the level for the Master's degree; and
- e) Level 8 is the level for PhD or doctoral degree.



Figure 1: The Eight Levels of Qualifications

Source: Ministry of Higher Education

Public Higher Education

Study options are flexible in Malaysia; they are readily available at both public and private education institutions. Both public and private education providers play equally important roles in the provision of higher education. Government-funded higher education institutions, includes universities, university colleges, colleges, polytechnics, community colleges, and teacher training institutes (see Table 1). These institutions only accept SPM students for their diploma or foundation courses; STPM school leavers for their Bachelor's degree courses and recognized bachelor's degree qualifications for Master's and PhDs studies.

Establishment	Name
	Public Universities
Jan 1, 1962	Universiti Malaya (UM)
1969	Universiti Sains Malaysia (USM)
May 18, 1970	Universiti Kebangsaan Malaysia (UKM)
Oct 4, 1971	Universiti Putra Malaysia (UPM)
Mar 14, 1972	Universiti Teknologi Malaysia (UTM)
Feb 16, 1984	Universiti Utara Malaysia (UUM)
Dec 24, 1992	Universiti Malaysia Sarawak (UNIMAS)
Nov 24, 1994	Universiti Malaysia Sabah (UMS)
Feb 24, 1997	Universiti Pendidikan Sultan Idris (UPSI)
Mar 13, 1998	Universiti Sains Islam Malaysia (USIM); formerly, Kolej
	Universiti Islam Malaysia (KUIM)
Jul 15, 1999	Universiti Malaysia Terengganu (UMT); formerly, Kolej
	Universiti Sains & Teknologi Malaysia (KUSTEM)
Aug 26, 1999	Universiti Teknologi MARA (UiTM)
Sep 30, 2000	Universiti Tun Hussein Onn Malaysia, formerly, Kolej
-	Universiti Teknologi Tun Hussein Onn (KUiTHO)
Dec 1, 2000	Universiti Teknikal Malaysia Melaka, formerly, Kolej
	Universiti Teknikal Kebangsaan Malaysia (KUTKM)
Jul 25, 2001	Universiti Malaysia Perlis, formerly, Kolej Universiti
	Kejuruteraan Utara Malaysia (KUKUM)
Feb 16, 2002	Universiti Malaysia Pahang, formerly, Kolej Universiti
,	Kejuruteraan & Teknologi Malaysia (KUKTEM)
2006	Universiti Darul Iman Malaysia (UDM)
2007	Universiti Malaysia Kelantan (UMK)
2007	Universiti Pertahanan Nasional Malaysia, upgraded from
	Malaysian Armed Forces Academy
	International University
May 10, 1983	International Islamic University Malaysia (IIUM)
	Polytechnics & Community Colleges
20 Dolyte	echnics; 34 Community Colleges; 7 Public Colleges
20 Polyte	connect, 34 Community Conceges, 7 Fublic Conceges
	Teacher Training Institutes
	27 Teacher Training Institutes

Table 1: List of Public Higher Education Institutions

27 Teacher Training Institutes

Source: Ministry of Higher Education

In the public sector, college education and the first bachelor's degree programs are offered to locals only, while postgraduate studies are open to both Malaysians and international students. Government-sponsored colleges provide another option for SPM leavers (or its equivalent) to further their education at certificate and diploma levels. A fulltime certificate course usually takes two years, while a diploma degree takes three years. One successful government-sponsored college is the Tunku Abdul Rahman College, which was established on February 24, 1969. There are 34 community colleges set up by the Ministry of Higher Education since the beginning of 2001. These colleges served to provide life-long learning opportunities to members of the local communities. In particular, SPM school leavers would be trained, retrained, and upgraded to the award of certificate qualifications.

Upper secondary school leavers (SPM qualification) can also opt to enter polytechnics to become skilled technical assistants and technicians in the various engineering fields. Polytechnics also provide relevant technological or entrepreneurial education and training to upgrade the basic skills, as well as to promote research and development projects in collaboration with businesses and industries. Currently there are 20 polytechnics in Malaysia offering full-time and part-time study programs at certificate and diploma levels. In general, the duration for a certificate course is 2 years (4 semesters), while the diploma course would take 3 years (6 semesters). The general entry requirement needed is SPM qualification.

University education is provided by the public sector, via the 19 public universities and one international university leading to the awards of diplomas, bachelor's degrees and postgraduate degrees. The entry requirements for undergraduate studies are:-

- a) SPM (full certificate with good grades) for diploma courses only;
- b) STPM (minimum Grade E in 3 STPM subjects including General Paper) for bachelor's degree level;
- c) Matriculation certificate from the Ministry of Higher Education (with good grades) for bachelor's degree level; and
- d) Other equivalent forms of qualifications.

English competency is assessed through the Malaysian University English Test and is considered a mandatory requirement. The entry requirement for postgraduate studies is a bachelor's degree qualification recognized by the university's senate.

Private Higher Education

Besides public institutions, students can also obtain education through private higher education institutions (see Table 2). In general, private institutions operate on government incentives, such as lower or several years of tax exemption, and donations from charity organizations. Recently, private institutions have also tapped the domestic capital market for funding (see Appendix B for further discussion). These institutions play a significant role in fulfilling the needs of tertiary education for the locals as well as foreign students. All types of private institutions have to be licensed by the Ministry of Higher Education in order to operate and conduct courses.

Private institutions offer a wide range of internationally recognized qualifications, foreign university awarded degree programs, professional and semi-professional courses, as well as English courses. They also offer a wide range of courses with various modes of studies for selection and assured quality education. To ensure quality education and to safeguard the interests of domestic and international students, all private educators are required to register with and be approved by the Ministry of Higher Education. Moreover, they must abide by the Parliament Acts, such as the Private Higher Educational Institutions Bill and the Education Bill. In addition, all private institutions are subject to the quality scrutiny by the Malaysian Qualification Agency. However, in order to enroll international students, private education providers require an additional license or approval from the Ministry of Home Affairs, Malaysia.

Malaysia's private higher education is unique and renowned in the world because it offers students a wide variety of study options, and numerous selections of both local and foreign university qualifications to suit individual preferences. Students can also select either the conventional full-time, part-time study, or the virtual study modes to obtain their qualification at reasonable costs.

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Establishment	Name	Campuses
1000	Private Universities	Carboniana Malu
1999	Multimedia University (MMU)	Cyberjaya, Melaka
1999	Universiti Tenaga Nasional (UNITEN)	Kajang, Bandar Muadzam Shah Selangor
1999 1999	Universiti Tun Abdul Razak (UNITAR) Universiti Teknologi Petronas (UTP)	Selangor
1999	International Medical University (IMU)	Kuala Lumpur
2000	Universiti Industri Selangor (UNISEL)	Selangor
2000	Open University Malaysia (OUM)	Kuala Lumpur
2000	Malaysia University of Science &	Selangor
2000	Technology (MUST)	Scialigor
2001	Asian Institute of Medicine, Science, &	Kedah
2001	Technology (AIMST)	Redail
2001	Universiti Tunku Abdul Rahman (UTAR)	Kuala Lumpur, Petaling Jaya,
2001		Bandar Sungai Long
2001	Universiti Kuala Lumpur (UniKL)	Kuala Lumpur
2001	emitersiti Ruulu Bumpur (emite)	Tuulu Dumpul
	University Colleges	
2001	University College of Technology &	Selangor
	Management Malaysia (KUTPM)	
2003	Lim Kok Wing University College of	Putrajaya
	Creative Technology (LUCT)	
2003	International University College of	Kuala Lumpur
	Technology Twintech (IUCTT)	
2003	Kuala Lumpur Infrastructure University	Selangor
	College (KLIUC)	
2003	University College Sedaya International	Kuala Lumpur
	(UCSI)	
2004	HELP University College (HUC)	Kuala Lumpur
2004	Sunway University College	Bandar Sunway
2004	Binary University College of Management	Selangor
	& Entrepreneurship	
2004	Asia Pacific University College of	Kuala Lumpur
2004	Technology & Innovation (UCTI)	
2004	Selangor International Islamic University	Selangor
2005	College (SIUC)	
2005	Cyberjaya University College of Medical	Selangor
2006	(CUCMS)	Nilai Nagari Samhilan
2006	INTI International University College	Nilai, Negeri Sembilan
2006	Cosmopoint International University College	Kuala Lumpur
2006	Wawasan Open University	Penang
2006	INSANIAH University College	Kedah
2006	Taylor's University College	Petaling Jaya
2000	Taylor 5 Oniversity Concee	i claning Jaya
	Foreign Branch Campuses	
1998	Monash University Malaysia	Bandar Sunway
1999	Curtin University of Technology	Miri, Sarawak
2000	University of Nottingham	Semenyih
2000	De Montfort University	Kuala Lumpur
2004	Swinburne University of Technology	Kuching, Sarawak
	Source: Ministry of Higher Education	

Table 2: List of Private Higher Education Institutions

Source: Ministry of Higher Education

Private institution programs are offered to different levels of students and will lead to the award of certificate, diploma, or degree qualifications. There are also a number of private educators which have started conducting postgraduate degrees. The categories are:-

- a) Non-university status institutions, namely, private colleges and private institutions; and
- b) University status institutions, namely, private universities, private university colleges, and foreign branch campuses.

Private institutes have been in existence as early as in the 1950s. Further developments in the 1980s enabled private institutes to offer courses with advance standing into foreign universities for their students. Since then, private institutes have been providing a wide range of options or pathways for students to pursue their desired paper qualifications via degree programs awarded by foreign universities (from bachelor to postgraduate degrees), franchised degree programs, professional and semi-professional courses, English language courses, internationally recognized internal certificate or diploma programs, and many more. Most of these private institutes also award their own internal certificates or diplomas.

Malaysian private colleges are renowned internationally for their long established twinning-degree arrangements with prominent foreign universities. In addition, most of these private colleges are also providing a unique education structure, that is, the 3+0 degree programs. Under this arrangement, students have a choice of pursing the British, American, Australian, French, New Zealand, or Canadian program leading to bachelor's degree qualifications, without having to leave the country.

There are 11 private universities, 16 private university colleges and 4 foreign branch campuses making up the group of private institutions that offer additional choices of homegrown programs at both the diploma and degree levels. These programs have been in operation since the beginning of 1997. Private universities and university colleges award their own degrees among other qualifications. They also collaborate with reputable foreign universities to jointly award degree qualifications. Foreign branch campuses are the branch campuses of foreign universities located in Malaysia and they award degree qualifications that are identical to that of the host universities. These institutions make it possible for students to obtain degree qualifications from the branch campus by paying the cost of a local education. Besides improving the quality of higher education, they also serve to attract foreign students into the country and thereby, alleviate the deficit in the external account. This also helps Malaysia to realize Vision 2020 easier. Private educators play a significant role in fulfilling the needs of higher education for many local and international students. The courses offered are open to the holders of SPM, STPM, or other equivalent foreign qualifications, for both local and international students. Private higher education institutions will require some basic academic qualifications from applicants before considering applications for the respective study programs. The general entry requirement to pursue diploma programs is the SPM or the 'O' level with a minimum of 3 credits, whereas students with STPM qualification or its equivalent, such as GCE 'A' Levels and university foundation program are allowed to enter into the year one of their undergraduate programs.

Proficiency in the English language is another requirement by the private institutions. Students are expected to have adequate knowledge and understanding of English, as this is the language of instruction at the private colleges and universities. Various international examinations such as the GCE 1119, Malaysian University English Test, as well as TOEFL and IELTS are acceptable for entry into the bachelor's degree programs.

Students who are holders of SPM, STPM, or other equivalent qualifications must apply directly if they are interested in applying to these institutions. Unlike the enrolment into public universities at the diploma and bachelor's degree levels, there is no centralized intake body that governs the enrolment of students into private institutions. However, students are still advised to check with the Ministry of Higher Education as to whether the prospective institution chosen is authorized or approved by the ministry.

IV. Financing Higher Education

This section discusses various policy measures in funding the higher education subsector in Malaysia. The first subsection is on macro-based approaches, while the second is on micro-based measures.

Macro-Based Policies

The central government has increasingly stresses the importance of the higher education industry in the process of long-run economic growth.² Specifically, the government intends to establish Malaysia as a regional education hub with an internationally recognized tertiary segment. By doing so, it is expected that Malaysia will ascend into a knowledge-based country. To realize these goals, the government has highlighted the need to reinvigorate the higher education system in its Ninth Malaysia Plan (9MP). Under the 9MP, which spans the period 2006 to 2010, the education subsector will receive the largest government development expenditure. It is worthwhile to indicate that the education subsector also received substantial allocations from 1996 to 2005.

Sector	7MP	8MP	9MP
(All figures in MYR million)	(1996-2000)	(2001-2005)	(2006-2010)
Economic services	47,172	65,446	89,886
Agricultural & rural development	8,139	7,749	11,435
Trade & industries	11,258	10,174	19,891
Transport	20,286	31,813	31,876
Social services	31,284	69,377	74,954
Education	19,724	43,729	41,114
Health	3,726	9,506	10,710
Housing	3,331	6,972	9,947
Others	4,504	9,170	13,183
Security	11,644	22,042	21,203
General administration	8,937	13,135	13,957
Total	99,037	170,000	200,000

Table 3: Federal Government Development Expenditure

Source: Ministry of Finance (2007)

² See Footnote 1.

The 9MP aims to raise accessibility to higher education in order to sustain a critical mass of trained, skilled, and knowledgeable labor force. In turn, this will promote long-term economic growth and improve competitiveness. Moreover, the 9MP also proposed numerous measures to enhance the quality of education. Two blueprints, which outline how the Ministry of Higher Education aims to improve the quality of higher education in Malaysia, were launched in September 2007. These two blueprints are: the National Higher Education Strategic Plan and the National Higher Education Action Plan 2007-2010. Having the additional Action Plan is useful because it gives an actionable timeline, which the Ministry of Higher Education can be made accountable to and it makes clear some of the deliverables of the Strategic Plan - such as the Apex universities, MyBrain15, Academic Audit, Graduate Training Scheme and Lifelong Learning. Under the section on critical agendas, there are clear action plans which the Ministry of Higher Education has oversight over and needs to follow so as to implement these deliverables.

Reforms in the higher education system are reinforced under the government's Budget 2008 (see Table 4, and Figures 2 and 3). The Budget 2008 emphasizes the need to strengthen human capital development. Among some of the policy measures proposed, include the allocation of MYR 1.4 billion for the construction of 102 secondary schools, 14 boarding schools, 3 sports schools, 2 technical and vocational schools, as well as a matriculation college. An initial grant of MYR 32 million will go towards establishing a university in Kelantan and Terengganu. An amount of MYR 920 million is set aside for the construction of 5 new polytechnics in Hulu Terengganu, Jeli, Mersing, Nilai, and Sandakan, and upgrading 12 facilities. Four Advanced Technology Training Centers are also being built in Taiping, Bintulu, Kemaman, and Jerantut at a total cost of MYR 172 million. Monthly allowance for special education teachers will be raised from MYR 100 to MYR 250. As for graduate substitute teachers, it will be raised from MYR 85 to MYR 150. Government sponsored students cost of living adjustment will increase between 23% and 84%; as for students studying in the United States, the United Kingdom, and Canada, it will be raised by 97%. Tax exemption for schools supported by trusts and charitable agencies. Public Services Department sponsored students in local universities doubling to 10,000 from 2008 onwards. Postgraduate fees will be subjected to tax relief provided that they are under MYR 5,000.

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Sector	2005 ^a	2006^a	2007^{b}	2008 ^c
(All figures in MYR million)				
Economic services	14,957	17,404	19,124	17,883
Agricultural & rural development	2,482	3,999	3,817	3,742
Trade & industries	3,221	3,389	4,364	3,860
Transport	7,660	7,751	6,702	6,777
Social services	7,450	9,525	13,055	13,490
Education	3,736	5,349	7,291	7,358
Health	1,220	1,298	1,496	1,949
Housing	1,082	1,347	1,977	1,744
Security	4,803	4,803	6,258	6,099
General administration	3,324	4,076	2,433	2,528
Total	30,534	35,807	40,870	40,000

Table 4: Federal Government Development Expenditure 2005-08

Source: Bank Negara Malaysia (2008)

Note: a Estimated actual; b Revised estimate; c Budget allocation





Figure 3: Growth of Respective Segments in 2006-08 Budgets



The conventional method of financing higher education, such as keeping tuition fees low for all students, improving accessibility for low-income students, and monitoring the quality of academic programs, is increasingly flawed. As the number of students rises, the amount of subsidy needed to maintain low tuition fees also increases. In turn, this may deprived funding for other more important economic services of the country. Similarly, growing income inequality may burden the government funding for poorer students via loans, grants, and scholarships. Furthermore, these problems may compromise the quality of higher education.

On the other hand, the formation of a public higher education trust fund may smooth funding and prevent sudden hike in tuition fees during economic downswings. The government may also consider front-loading financial assistance to students during the early years of academic programs. Students who are capable of graduating would borrow funds to complete their studies. In this respect, moral hazard and funding issues may be reduced. Moreover, the government may raise academic fees only on the condition that students will remain in the country upon graduation. In this regard, those students who have paid higher tuition fees will be subjected to tax allowances.

Micro-Based Approaches

There are many types of financial assistances available to students for pursuing their higher education in the country. These include study loans and scholarships from both public and private sectors.

In terms of the public sector, the main providers of financial aids are: (a) the National Higher Education Fund, and (b) the Public Services Department Sponsorship Programs. First, the National Higher Education Fund has a total amount of MYR 2.5 billion for tertiary education loans in 2007. Of this amount, only 4% or MYR 100 million is directed at students in private institutions. The loans can be used for payment of tuition fees, educational equipment, and the cost of living expenses during the student's period of study. The selection criterion is based on an annual family income of less than MYR 20,000. Students who don't qualify for scholarships should still have access to student loans at attractive interest rates. This is to ensure that all qualified students are not denied higher education opportunities due to the lack of funds. This is one of the recommendations made by the Zahid Higher Education Report (see Ministry of Higher Education (2006)).

"107. The Committee recommends that no eligible student who has been offered a seat at an institution of higher education at diploma or undergraduate level be denied the opportunity to learn because of financial difficulties."

In addition, the government has launched an Education Savings Scheme, with an initial sum of MYR 100 million, to encourage parents to save for their children's education. The strategy is again consistent with the recommendations of the Zahid Higher Education Report.

Second, the Public Services Department routinely award 80% of overseas scholarships to Bumiputra students and the remainder 20% to non-Bumiputra students every year since 2000.

Year	Bumij	Bumiputra Non-Bumiputra Tot		ra Non-Bumiputra	
I cai	Number	Share (%)	Number	Share (%)	10141
2000	598	79.95	150	20.05	748
2001	609	80.03	152	19.97	761
2002	999	79.98	250	20.02	1,249
2003	1,314	79.98	329	20.02	1,643
2004	1,187	79.99	297	20.01	1,484
2005	1,040	80.00	260	20.00	1,300
Total	5,747	79.99	1,438	20.01	7,185
	S	ource: Public Serv	ices Department		

Table 5: Overseas Scholarships Allocation

Source: Public Services Department

In addition, for local undergraduate scholarships, the Public Services Department has clearly allocated 30% to non-Bumiputra students, and the balance 70% reserved for Bumiputra students.

Year	Bumir	outra	Non-Bumiputra		Total
Ital	Number	Share (%)	Number	Share (%)	10141
2002	350	70.00	150	30.00	500
2003	350	70.00	150	30.00	500
2004	350	70.00	150	30.00	500
2005	350	70.00	150	30.00	500
Total	1,400	70.00	600	30.00	2,000

Table 6: Local Scholarships Allocation

Source: Public Services Department

The key criteria for the Public Services Department scholarships are (a) academic performance (65%), (b) interview performance (15%), (c) extra-curricular activities (10%), and (d) family background (10%).

In contrast, the private sector offers several options. Firstly, the New Straits Times and Malaysian Association of Private Colleges and Universities Scholarship Program is a prestigious and comprehensive yearly plan. The program designs to provide educational

opportunities to academically deserving and needy students. In addition, it contributes to the success of the Multimedia Super Corridor through skills development. It will also produce graduates from local institutions of higher learning who have the potential to become leaders in the country. In line with the government's policy of establishing a caring society amongst Malaysians, the Malaysian Association of Private Colleges and Universities has allocated approximately MYR 1.74 million for the scholarship scheme in 2007. A total of 50 scholarships have been given out by 8 participating institutions.

Secondly, low-income students may also obtain study loans or scholarships from various charity organizations. A majority of the charity foundations were initially established by rich tycoons in the 1970s. These include the Lee Rubber Foundation, Kuok Foundation, Lee Loy Seng Foundation, and Syed Kechik Foundation. The foundations set up by new generation of rich Malaysians, includes Yayasan Albukhary, Malaysian Community and Education Fund, Harapan Nusantara Fund, Yu Cai Foundation, Yayasan Pok Rafeah, Yayasan Haji Zainuddin, and Hope Foundation. Funds of these private entities are distributed to both solicited and unsolicited applications, although solicited requests are given preference. The annual grants to programs vary and are none specific. However, there are some specific ranges for certain foundations or funding especially for higher education. The private funding for education has always aligned funding to each recipient in parallel to government funding. However, for education funding most allocations is provided to Malaysians, who pursue studies in local institutions. In exceptional cases, some foundations sponsor higher studies overseas. Applications for higher education funding are opened annually in conjunction with the intakes of universities or higher education institutions. Forms are normally made available at bursary of colleges or universities, and also can be obtained directly from the foundations.

Besides private foundations, the corporate sector also provides funding to students. For example, Astro, a satellite television operator, launched the Astro Scholarship Awards on December 2, 2005. Astro Scholarship is a bursary reserved for Astro loyal subscribers and their immediate family members. Each year, 12 undergraduate and 3 graduate scholarships will be awarded for young Malaysians to pursue areas of studies related to the media and broadcasting industry. These include Engineering, Computer Science, Science, Humanities, Mass Communications, Dramatic Art, and Computer Graphics. Nine students will receive scholarship to study in local universities, while six in universities and colleges overseas recognized by the Public Services Department. Bursary value ranges from MYR 8,000 per year for scholars pursuing a degree locally to MYR 150,000 per year for students studying overseas. It covers tuition, living expenses, air travel where warranted, insurance, and internship allowances. Scholars are expected to work in Astro for 3 to 5 years. Astro Scholarship is unique in that it is committed to providing an optimal environment for acquiring knowledge, skill, experience, and mentoring guidance. Ideally, each scholar will be assigned to work with Astro content partners and in Astro during internship. The scholar will also be assigned a mentor to guide him or her throughout his or her studies. Upon graduation, the student will be given employment opportunity at Astro. This process ensures that the scholars pursue an area of study relevant to their interest with a clear vision of a career path right from the start. For these reasons, Astro Scholarship is specifically reserved for young Malaysians who are 35 or younger in age.

Astro Scholarship is the only scholarship dedicated to developing human capital in the area of media and broadcasting industry. As industry leader, Astro is taking on the responsibility in answering the call by the government to raise the standard in areas, such as sound engineering, scripting, digital imaging, animation, cinematography, production, and acting. Finally, as a tribute to Datin Seri Endon Mahmood, Astro has established a special award, whereby 2 of the 15 scholarships will be awarded in her name.

Apart from Astro, other industries also offer private funding for higher education purposes. For example, commercial banks, insurance companies, oil and gas industries, as well as proprietary businesses. As a last resort, it is common for students to obtain financing through family, relatives, and bequests.

V. Conclusion

This paper has discussed the roles of the government in shaping the higher education system in Malaysia. In particular, both public and private funding approaches were evaluated. Since 1996, the private sector role in providing higher education has increased due to budgetary constraints and changing economic circumstances. These private institutions of higher learning mainly operated on investment incentives and donations from charity organizations, without public funding. Due to limited funding, these private educators can only provide a limited number of scholarships to assist low-income scholars. Recently, some of these private higher education providers have also obtained funding from the financial market. There is still a lot of work that need to be done in order to promote Malaysia as an educational hub.

Appendix A

Key Education Directives

Education	nal Laws
1957	Education Ordinance
1961	Education Act (Revised 1996)
1963	National Language Act (Revised 1971)
1971	University and University Colleges Act (Revised 1996)
1974	Ungku Omar Polytechnic Act
1980	Malaysian Examinations Council Act
1996	Private Higher Education Institutions Act
1996	National Council of Higher Education Act
1996	National Accreditation Act
1997	National Higher Education Fund Board Act
Importan	t Reports
1956	Report of the Education Committee (Razak Report)
1960	Report of the Education Review Committee (Rahman Talib Report)
1967	Higher Education Planning Committee Report
1973	Report on Dropouts
1979	Mahathir Report
1991	Cabinet Committee Report on Training
2005	Zahid Higher Education Report
Bahasa M	lelayu in the System of Education
1957	Compulsory subject in primary and secondary schools
1970	Medium of instruction in Standard One
1975	All English primary schools converted into national primary schools
1976	Medium of instruction in Form One
1979	Medium of instruction in Form VI, arts stream
1980	Medium of instruction in Year I of arts faculty in universities
1981	Medium of instruction in Form VI, science stream
1982	Medium of instruction at all levels in schools
1983	Medium of instruction for all university courses
Key Exan	
1964	Sijil Pelajaran Malaysia (SPM) introduced
1969	Sijil Pelajaran Vokasional Malaysia (SPVM) introduced
1982	Higher School Certificate (HSC) abolished
1982	Sijil Tinggi Persekolahan Malaysia (STPM) introduced
1987	SPVM certificate converted into SPM(V)
1987	SPM held throughout Malaysia
1993	SPM based on KBSM launched
Curriculu	
1956	General Syllabuses and Timetable Committee formed
1964	General Syllabuses and Review Committee formed
1965	Comprehensive Education introduced
1967	Report of the Committee on Curriculum Planning & Development
1973	Curriculum Development Center established
1988	Implementation of KBSM starting with language subjects
1989	Implementation of KBSM for other subjects
Others	Implementation of report for other subjects
1996	National Council on Higher Education created
1990	National Accreditation Board (NAB) initiated
2007	Malaysian Qualification Agency founded and replaced NAB
2007	Source: Ministry of Education

Source: Ministry of Education

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Appendix B

HELP International Corporation Berhad (HIC) is a holding company that is primarily in the field of private higher education. Founded in June 2005, HIC has four wholly-owned subsidiaries and a 72%-owned associate.

Entity	Principal Activities
	Wholly-owned subsidiaries
HELP University	Providing tertiary focused education for a wide range of pre-university,
College	undergraduate, and postgraduate degree programs
HELP Training	Providing education and other learning facilities via its own center and
Center	in twinning with other education institutions
HELP Academy	Providing higher learning courses, educational, and other learning
-	facilities via its own centers and in twinning with other educational institutions
HELP Executive	Providing professional and executive education and training
Advanced Training	
C	Associate company
International Center	Managing business of an institute of higher studies or educational
for Security	establishment and events management
Management	č

Table B1: Corporate Structure

Source: HIC

Table B2:	Categories of	of Programs
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Program	Description
External	Entry requirements, curriculum, and examinations are determined and conducted externally by the relevant examination body, which awards
	the qualification. HIC's role is limited to provide tuition support for the
	prescribed syllabus and assisting students to provide tuition support for the
Internal	Entry requirements, curriculum, and examinations are developed and
	conducted internally. HIC is responsible for conferring the award,
	which can be used as a separate qualification in its own right, or more
	commonly, as an entry qualification providing advanced standing on to
	undergraduate degree programs offered at HELP University College or
	to universities overseas under various credit transfer arrangements.
Collaborative	Entry requirements, curriculum, and examinations are developed and
	conducted internally in collaboration with a foreign university partner.
	The foreign university partner is involved in the moderation of course
	content, as well as the assessment, evaluation, and examination
	process, and is ultimately responsible for awarding the qualification.

Source: HIC





Source: HIC



Figure B2: Student Population (By Program)



HIC faces competition from public universities, private universities, and other institutions of higher learning, both locally and overseas. Locally, the increasing interest in the higher education subsector from the government and large corporations has result in more establishments of universities, which in turn leads to a more competitive market.

Globalization of the higher education segment has also lead to a more competitive market. In the region, HIC competes against China and other South East Asian countries like Singapore and Thailand, which are as serious as the Malaysian government in developing their higher education system. The higher education industry is a potential foreign exchange earner, and to developing nations education is a catalyst for transformation of their socioeconomic status.

Assuming a total private sector enrolment of 300,000 based on estimates by the Malaysian Qualification Agency, HIC has a market share of approximately 3%. According to the HIC, there are no more than a dozen private colleges or universities that are in the same league in terms of student numbers.

Programs	Number of Institutions Surveyed	HELP University College's Ranking
Internal Pre-University	19	Second
External Pre-University	8	Second
Business Undergraduate	17	First
IT Undergraduate	18	Third
American Degree Transfer (ADT)	6	Second
ADT, Psychology Major	4	First
Law Undergraduate	4	First

Table B3: Market Position in December 2003

Source: HIC

HIC is a pioneer and innovator in tertiary education in Malaysia. It was among the first to introduce foreign "twinning" and external degree programs, providing local students with lower-cost routes to overseas accredited degrees. "Twinning" programs are tertiary courses conducted in collaboration with overseas universities, with degrees conferred by the latter. A student will spend two years at HELP University College before transferring overseas in the third year. This provides substantial cost savings compared with studying overseas for all three years.

Another variation of this is HIC's American Degree Program, which provides a general foundation for entry into the United States and other universities. In June 1998, HELP University College was one of the first few colleges given approval to conduct "3+0" degree programs awarded by foreign universities. This allows students the opportunity to obtain an overseas-accredited degree by studying for all three years locally.

It has developed strong collaborative relationships with a number of top international universities in the United Kingdom, Australia, and Canada. HELP University College was the first private institution in the world outside the United Kingdom recognized by the London School of Economics and Political Science to conduct the University of London, UK Diploma in Economics. The group is also among the leading group of colleges conferred university college status by the Ministry of Higher Education in 2004. A university college status allows HELP University College to offer its own degrees with strict requirements related to academic quality and facilities. HIC's alliances with reputable foreign universities have enhanced its brand name and academic standing, and also help it in negotiation with foreign partners for new products and collaborations. This university college status also gives the group strong credibility with foreign governments.

According to the group, HIC has a portfolio of intellectual properties in the form of degree programs that are differentiated from other competitors in terms of specialty pathways and value added features.

As the group involved in the higher education industry, human capital will be the single most important asset. According to the group, HIC is among one of the preferred employers in the local education industry with 1.3% staff turnover rate in 2006. Student enrolments will have a cyclical effect on HIC's revenues, in which a drop in student enrolments in a particular year will affect revenues for the next few years depending on the duration of courses, and vice versa.

HIC's strategy is to focus on selective areas, such as business, psychology, law, multimedia, security management, and postgraduate studies. Other than local students, HIC intends to increase the number and quality of international students in its existing programs. Currently, 60% of total foreign student enrolment is made out of students from China and Indonesia. The group intends to target students from new markets, such as Asia, Middle East, and Africa. E-learning support will be use to scale up the delivery model and volume of business for different programs, where the traditional approach is not economically viable. HIC is actively looking at opportunities for international franchising to leverage on its branding. It is in advanced stages of exploring tie-ups in several countries, including Vietnam, Saudi Arabia, China, and Indonesia. There are around 600 students studying in Vietnam National University, who will eventually transfer to HELP University College for their final year of studies. HIC is using the same model to venture into Indonesia, in a tie-up with six colleges. These overseas ventures are expected to yield high returns with low risks, as HIC does not intend to invest in buildings and assets, but provide the courses, curriculum, degrees, academic support, and other services. More importantly, they attest to the strength of HIC brand in the global market. They also fit into the strategy of bringing more students to Malaysia, making Malaysia an education hub.

HIC is also leveraging on its pre-university programs. HELP University College has one of the largest Edexcel centers in the world, offering quality "A" level education programs. Edexcel is one of five main United Kingdom examination boards, awarding over 1.5 million certificates annually. The group will also expand its existing business in executive and professional training courses, move downstream into secondary school education subsector and tutorial colleges, and develop new programs in specialist area. HIC will utilize its franchising and licensing models to scale up the volume and diversify its geographical market share. To boost its global status, HIC will expand the number of partners using different collaborative models.

HIC is also aggressively expanding on the local front. In November 2007, it acquired Sepang Institute of Technology, since renamed HELP-ICT for MYR 2 million. This came with 1,500 students, different courses and tie-ups, and a campus of about 200,000 sq. ft. in one of Klang's popular shopping malls. In mid-March 2008, it acquired a 23.3 acre leasehold site in Sungei Buloh, Selangor for MYR 20.3 million. The site will house its new integrated campus. Apart from providing a more conducive environment, the campus will also fit into HIC's plan of becoming a hub for its regional expansion. It will also enable HELP University College to apply for an upgrade to "University" status, as one of the requirements is an integrated campus with housing facilities.

More experienced and qualified staff with PhD degrees and other professional qualifications will be employ, and HIC target to have 25% of its staff to be PhD degree holders by 2010. The group will sustain its research and publication activities to enhance its stature as a university of achievers.

The private higher education subsector enrolments have been climbing steadily for the past years, wherein a significant area of growth for the private sector has come from the

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overseas market. Malaysia's competitive advantages as an educational destination is the use of English as medium of instruction in the private sector, affordable fees, and as a gateway to a third country. According to the Ninth Malaysia Plan, the government has set a target of 100,000 foreign students by 2010 from 50,000 currently.



Figure B3: HELP University College's Student Numbers from 2000-2006

As at March 15, 2007, HELP University College has a student population in excess of 8,500 registered students, including 1,500 students from overseas. HIC target around 3,400 new enrolments for 2007, representing a 13% increase from 2006. The group also target 1,000 new enrolments of foreign students for 2007, 25% increase from previous year. Foreign students include those from China, Indonesia, Bangladesh, India, Middle East, Maldives, Vietnam, Korea, and Africa. HIC aim to achieve about 30% of its revenue will be derived from alternative sources, which is the more traditional undergraduate and postgraduate program provision within the next five years.



According to HIC, total net tuition fees have been on an increasing trend having growth rates of between 7% and 10% per year. Payments made to foreign universities with which HELP University College has twinning arrangements declined as it is capable of awarding its own Bachelor and Masters Degrees with its university college status. The reduction of payment and overall increase in tuition fees with escalating student populations have been the main driver of HIC's growth since 2004.

The industry has in the recent years become affected by the greatly enlarged student capacity of public institutions of higher learning, which offer a cheaper alternative to private higher education, and the regional alternatives to private higher education in Malaysia that have sprung up in the region as well as its rapid growth in China, which had provided many of Malaysia's foreign student population.

All figures in MYR	20	005	20)06
million	Revenue	Net Profit	Revenue	Net Profit
HELP University	48.0	6.6	53.5	8.1
College				
Stamford	22.0	-7.9	22.8	-4.7
SEG	75.1	0.2	74.1	2.1
INTI	137.8	-7.6	124.7	-3.0
		Source: HIC		

Table B4: Revenue and Profit Comparison among Listed Peers

Since its establishment in 1986, HELP University College has awarded many scholarships to encourage academically inclined Malaysian and international students who display leadership qualities to pursue tertiary education. HELP University College provides scholarships and study awards for both new and continuing students. Moreover, HELP University College also provides financial assistance to students who are facing financial difficulties, but who are not eligible for scholarship awards based on academic achievements. The financial assistance will take the form of an interest-free study loan, which is granted at the discretion of the Scholarship Committee and is intended to assist students in financing their studies.

References

Bank Negara Malaysia (2008), Monthly Statistical Bulletin April 2008, Kuala Lumpur: BNM

Barro, R.J. and J.W. Lee (1994), "Sources of Economic Growth," *Carnegie-Rochester* conference Series on Public Policy, 40, 1-46

Barro, R.J. and J.W. Lee (1996), "International Measures of Schooling Years and Schooling Quality," *American Economic Review, Papers and Proceedings*, 86(2), 218-223

Barro, R.J. and J.W. Lee (2000), "International Data on Educational Attainment: Updates and Implications," *Center for International Development*, Working Paper No. 42, Harvard University

Barro, R.J. and J.W. Lee (2004), "Penn World Table 6.1"

Becker, G.S., K.M. Murphy, and R. Tamura (1990), "Human Capital, Fertility, and Economic Growth," *Journal of Political Economy*, 98(5), S12-S37

Easterly, W. (1993), "How Much Do Distortions Affect Growth?" *Journal of Monetary Economics*, 32(2), 187-212

Jones, L.E. and R.E. Manuelli (1990), "A Convex Model of Equilibrium Growth: Theory and Policy Implications," *Journal of Political Economy*, 98(5, 1008-1038

Lucas, R.E., Jr. (1988), "On the Mechanics of Economic Development," *Journal of Monetary Economics*, 22(1), 3-42

Mankiw, N.G., D. Romer, and D. Weil (1992), "A Contribution to the Empirics of Economic Growth," *Quarterly Journal of Economics*, 107(2), 407-437

Ministry of Finance (1987), Economic Report 1986-87, Kuala Lumpur: Government Printer

Ministry of Finance (2007), Economic Report 2006-07, Kuala Lumpur: Government Printer

Ministry of Higher Education (2006), *Report by the Committee to Study, Review and Make Recommendations Concerning the Development and Direction of Higher Education in Malaysia*, Kuala Lumpur: Government Printer

Mulligan, C.B. and X.X. Sala-i-Martin (1993), "Transitional Dynamics in Two-Sector Models of Endogenous Growth," *Quarterly Journal of Economics*, 108(3), 737-773

Rebelo, S.T. (1991), "Long-Run Policy Analysis and Long-Run Growth," *Journal of Political Economy*, 99(3), 500-521

Romer, P.M. (1990), "Human Capital and Growth: Theory and Evidence," *Carnegie-Rochester Conference Series on Public Policy*, 32, 251-286

Tamura, R. (2002), "Human Capital and Economic Development," Working Paper 2002-5, Federal Reserve Bank of Atlanta

Uzawa, H. (1965), "Optimum Technical Change in an Aggregative Model of Economic Growth," *International Economic Review*, 6, 18-31

Young, K., W.C.F. Bussink, and P. Hasan (1980), *Malaysia: Growth and Equity in a Multiracial Society*, Baltimore: John Hopkins University Press