

# Future Directions of the Ministry of Higher Education

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## Background

Following the cabinet reshuffle this year, the Ministry of Higher Education was established on 27<sup>th</sup> March 2004. The Ministry consists of Public Institutions of Higher Learning, Private Higher Educational Institutions, Polytechnics, Community Colleges and University Colleges. It was established to take care of higher education matters and operations; involving the transfer of the Department of Higher Education (JPT), Department of Private Education (JPS), Department of Technical Education (Polytechnics and Community Colleges), Public Institutions of Higher Learning, National Accreditation Board (LAN), National Higher Learning Funding Corporation (PTPTN) and Yayasan Tunku Abdul Rahman.

## The Core Values of the Ministry of Higher Education

The mission, vision and objectives of the Ministry of Higher Education are capable of fulfilling the country's aspirations, specifically in ensuring that education standards are continuously retained at high levels and in producing outstanding highly competitive citizens. In addition, Malaysia is set to become Asia's centre of educational excellence. In the drive to strengthen the education system, efforts will be focused on increasing the credibility of education system and promoting public confidence regarding the quality of Malaysian awards. This can be achieved through the Malaysian Qualification Framework that aims to ensure the curriculum and the education module meet the needs of the employment market as well as to inculcate core moral values among all graduates from public and private institutions of higher learning in Malaysia.

Higher education is the main force in the implementation of the nation's vision in generating knowledgeable and skilled citizens. Higher education should strive to develop critical, creative and innovative minds as well as to ensure the global competitiveness of the nation. Higher Education is also the main agent in configuring a fair socio-economic system that is based on k-economy as well as creating a society that is physically, emotionally, spiritually and intellectually ethical, respectable, competitive and well adjusted.



**Datuk Dr. Adham Baba**

In the context of the national education system, higher education spans from post secondary education to tertiary education. It comprises educational programmes at Community Colleges, Polytechnics, training institutes run by government and private agencies, public universities and private higher educational institutions.

Community Colleges, Polytechnics and training institutes run both by government and private agencies award certificates or diplomas. They also form an alternative

## HIGHLIGHTS

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route to tertiary education. Community colleges specialise in skilled training and re-training while Polytechnics emphasise semi-professional training. Tertiary education, on the other hand, awards diplomas and degrees and qualifications of equivalent value.

## **The Vision and Mission of the Ministry of Higher Education**

### **Vision**

Malaysian Higher Education will be a centre of excellence not only nationally but also internationally.

### **Mission**

The Ministry of Education provides opportunities and access to a trusted system of higher learning by offering superior quality educational programmes through international recognition and outstanding workforce who can fulfil both the national and global needs.

Through effective organisation, efficient delivery system and good governance, departments and agencies under the Ministry will synergise their workforce and ideas towards fulfilling the expectations of the stakeholders. Together with effective leadership, the nation's objectives will be fulfilled.

## **Issues and Challenges**

The higher education system in this country is being constantly reviewed to ensure that the country's vision and aspirations as the centre of excellence in global education is achieved. Meticulous and strategic planning will ensure that Malaysia is capable of remaining globally competitive. The planning requires careful considerations of internal as well as external factors related to the world of higher education. These factors include:

- **Demand for Higher Education**

The opportunities for higher education are insufficient to cater for the increasing number of excellent students.

- **Involvement of Private Sectors**

The responsibilities of providing higher education should not be solely placed on the shoulders of the government. The roles of private sectors through Private Higher Educational Institutions are significant in an effort to increase the participation of youth in higher education. Apart from limiting the outflow of our currency, these private institutions can contribute towards the country's economy by encouraging more foreign students to come and study in this country.

- **Equal Participations of Bumiputras**

The involvement of Bumiputras in higher education is still significantly small. Presently, less than 40% of Bumiputra youth within the 17+ to the 23+ age cohorts have the opportunities to participate in educational programmes at various levels. Most of these opportunities are provided by Public Institutions of Higher Learning. However, the number of Bumiputras is still small in Private Higher Educational Institutions. The problem is intensified because most of these private institutions are located within main cities and this limits the access for Bumiputra students from certain locations, particularly from rural areas. The lack of economic equilibrium has been identified as the main reason for the instability of racial solidarity in this country.

- **Demands for Science and Technology**

In preparation to become a developed country, we require more scientists and technology specialists. The rate of seven scientists for every 10,000 Malaysian population is considered low if compared to several of our neighbouring countries. Our strength in science and technology would be the main force for the creation of cutting edge knowledge apart from allowing us to manufacture strategic products. It is important to have an overall view of technical skills at every level according to the changing market trends. Training must include not only expertise in this field but also 'hands-on' training, together with significant level of creativity. Current development in technology particularly in Information and Communication Technology has altered educational and research methods and processes. Our specialist skills are also needed in order to manipulate, share and analyse information circulated daily via internet, satellite and other communication facilities, for the purpose of upgrading our knowledge and our application of that knowledge.

- **Funding and Education Fees**

The emergence of numerous institutions of higher learning requires increasing funding from the government. With the intention of not burdening students and their parents, one strategic mechanism is required to ensure that each institute is able to generate its own supplementary income. Universities and polytechnics need to use their existing infrastructure and expert workforce for this purpose. A more accountable smart partnership between industry and management needs to be conducted.

Student fee is another issue that has caught society's attention. Astronomical funding of educational fees particularly in Private Higher Education Institutes is a big burden. In addition, the awards of scholarship and loans from certain agencies are limited.

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- **Autonomy and Accountability**

Presently, the world of education has autonomy in various aspects of management including financial management, employment, pension scheme and individual generation of funds to increase its efficiency. Local public universities also wish to obtain similar autonomy through corporatization. The current *Skim Saraan Baru* (SSB) is largely blamed for hampering efforts to competitively excel and obtain expert and highly qualified workforce. A separate and flexible scheme is proposed for the management of public institutions of higher learning. However, guidelines need to be drawn to ensure accountability at all levels of administration in these institutions.

- **Mastery of A Second Language**

Communicative skills are an added value to enable us to break through and capitalise on opportunities in the international market. Although Bahasa Malaysia is the official language, we need to be proficient in a second language, particularly the much needed English Language. This competence will provide increased confidence to allow our students to be competitive.

- **Internationalisation**

We are witnessing a global world without borders and boundaries. The dream of establishing a small global village has resulted in rapid freedom and mobility of international society. Steadily decreasing geographical and legal boundaries allow for a smooth mobility of society. Such environment is going to create social, cultural, economic, and religious and educational problems. Society in general and students in particular need to be prepared so they are able to take control of these complex challenges and competition.

- **Quality**

Quality is the most significant aspect to ensure excellence in developing a highly competitive culture. We need a quality education system to realise our vision to be the centre of excellence in the international scene. The quality of teaching staff, the learning environment, the evaluation process and facilities for students in all higher learning institutions need to be upgraded. The curriculum needs to be revised to fulfil the current needs of industry and employment market. Bench-marking methods which comply with international standards and recognitions ought to be carried out to guarantee that the product of our education system is accepted internationally. These require an administration that is efficient, forward thinking, transparent and proactive. Excellent managerial and leadership skills will be able to promote our education system to a level recognised by the international community.

- **Involvement of Other Government Agencies in the Education System**

The involvement of other government agencies add interesting colour to the system of higher education. Yet, these involvements have legal implications and repercussions in terms of recognition. In various aspects, their quality assessment cannot be carried out because their accountability to the Ministry of Education is vague.

### **The Directions of Malaysian Higher Education**

Based on the issues and the challenges facing the system of higher education in this country, several measures and strategies have been placed. These strategies act as future directions of higher education to ensure their objectives can be achieved. Among the directions set out by the Malaysian higher education are:

1. Access to higher education
2. Racial and social equality
3. Emphasis on Science and Technology (S&T)
4. The use of Information and Communication Technology (ICT)
5. Upgrading of post-graduates programmes
6. Inculcation of K-economy knowledge.
7. Graduating high quality students.
8. Encouragement of research and development of international standards.
9. Competitive funding mechanisms.
10. Inculcating the culture of quality

The shift towards the direction planned for Malaysian higher learning needs to take place so it will be parallel with the rapid tide of development in the country. This is due to the fact that education is a positive agent and mechanism of change. To achieve vision 2020 and to become a nation that has high technological skill, education must play a pivotal role. Nevertheless, this drastic shift and change will also have significant social implication on the structure of society in this country unless it is handled correctly. Education in this country is becoming increasingly liberal and it is inevitable that society has to make changes in their lifestyles, moving towards the creation of a knowledgeable society.

*(An extract of the speech delivered at the South Zone Undergraduate Colloquium on 21<sup>st</sup>. August 2004.)*

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# THE RETURNS TO EDUCATION OVER TIME: THE MALAYSIAN OUTLOOK, 1984-1997

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## Introduction

The returns to education over time are examined in Riveros (1990) for Chile, Demetriades and Psacharopoulos (1987) for Cyprus, Appleton *et al.* (1995) for Kenya, Funkhouser (1998) for Costa Rica, Palme and Wright (1998) for Sweden and Duraisamy (2000) for India. The list of studies can be extended further to include studies for countries like Korea (Ryoo, *et al.*, 1993), Taiwan (Gindling, *et al.*, 1995), Spain (Vila and Mora, 1998), the United Kingdom (Chevalier and Walker, 1999), Norway (Hægeland, *et al.*, 1999), the United States (Katz and Murphy (1995) and Arias and McMahon, (2000)), Brazil (Green, *et al.*, 2000) and Portugal (Hartog *et al.*, 2001).

While the verdict of the trends in the returns to education over time is mixed,<sup>1</sup> majority of these studies tend to relate the changes in the returns to education to the changing demand and supply of labour in the respective country of analysis.

## Rate of Returns to Education in Malaysia Over time

To estimate the Malaysian marginal gross returns to education over time, we applied data from 6 sets of the

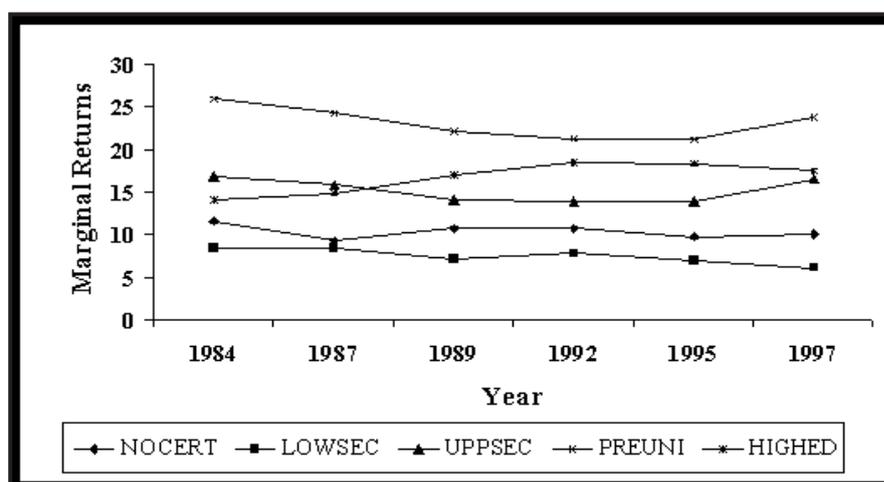
Malaysian Household Income Survey (i.e. 1984, 1987, 1989, 1992, 1995 and 1997) into a human capital earnings function (equation 1).

$$\ln Y_i = \alpha + \gamma_1 age + \gamma_2 age^2 + \beta_i S_{dum} + \delta_i X_i + \varepsilon_i \quad (1)$$

where  $\ln Y_i$  is the logarithm of annual earnings,  $S_{dum}$  is a list of dummy variables indicating achievement of one particular level of education. Six categories of educational attainment are examined, i.e. the no formal education level (NOFED), those who did not obtain any certificate (NOCERT), the lower secondary level (LOWSEC), the upper secondary level (UPPSEC), the pre-university level (PREUNI) and the tertiary education level (HIGHED). Age and  $age^2$  are the usual proxy variables for experience and  $X_i$  is a vector of control variables, i.e. marital status, gender, the logarithm of the number of hours worked in a week and  $\varepsilon_i$  is the error term.

Using the  $\beta$  estimates, we are able to measure the marginal gross return which indicates the returns to education for each additional year taken to achieve the next level of education. The results of the analysis showed that the returns to education over time to be stable for majority of the educational levels with the exception of the higher education level, which showed an increased marginal gross returns from 1984 to 1997 (See Figure 1).

Figure 1: Marginal gross returns to education, HIS 1984-1997



## The Demand and Supply of Labour

Using a simple demand and supply framework (Katz and Murphy, 1992), we examine relative wages, relative demand and relative supply of higher education workers to explain the increasing marginal gross returns to the higher education schooling level. When considering relative wages, we attempt to investigate the determinants of the changes in relative wages of a group of high skilled individuals with a second group of low skilled individuals. For this analysis, the high-skilled individuals are those with a tertiary degree, i.e. the HIGHED graduates. Our low-skilled workers are those with the LOWSEC qualification level.<sup>2</sup>

In order to do this, we estimated the relative supply of the HIGHED and LOWSEC individuals. The relative supply of skilled labour is computed by using the values of the coefficients obtained from 4 regressions.<sup>3</sup> The 'value' of a person with a particular qualification is measured by the individual educational group's average wages (notated by WNOCERT, WNOFED, WLOWSEC, WUPPSEC, WPREUNI and WHIGHED). Table 1 shows the regression results obtained.

**Table 1: Regression results leading to the calculation of relative supply**

INDEPENDENT VARIABLE	WLOWSEC	WUNIV
WNOFED	0.420	0
WNOCERT	0.962	0
WUPPSEC	0	0.221
WPREUNI	0	0.382

**Figure 2: Log of relative wages, 1984-1997**

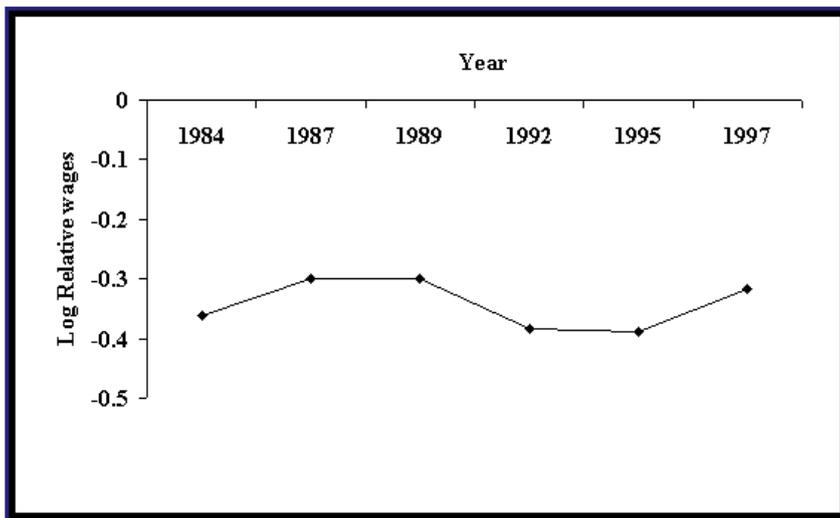
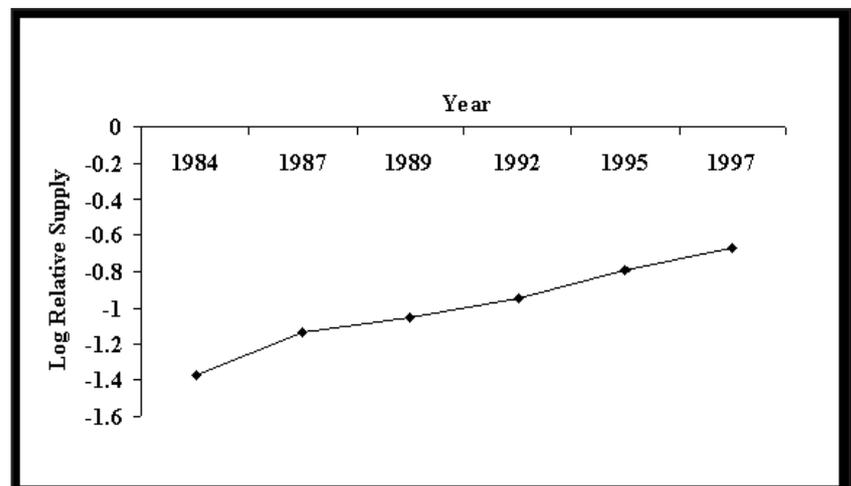


Figure 2 shows the log relative wages of the high skilled to low-skilled individuals in Malaysia for 1984 to 1997. Relative wages appear to have risen from 1984 to 1987 and are stable from 1987 and 1989, only to decline in 1992. It stabilised between 1992 and 1995 and increased in 1997.

The change in relative wages is related to a change in the relative market price of skills possessed by the high-skilled and low-skilled individuals. Hence, we need to determine the degree to which the change in relative wages is driven by fluctuations in the growth of supply versus the growth of demand side factors.

The results in Table 1 indicate that a person with NOFED is equivalent to a total of 0.42 of a LOWSEC person and a NOCERT person is 0.962 of a LOWSEC person. At the other end, a person with an UPPSEC qualification is 0.221 of a HIGHED person and a person with a PREUNI qualification is 0.382 of a person with a HIGHED qualification. These coefficients are used to form the supplies of HIGHED

**Figure 3: Log relative supply of skilled labour, 1984-1997**



and LOWSEC equivalents. Figure 3 shows the log of relative supply computed for the time period of 1984 to 1997.

Relative supply has increased over the time period of our analysis from Figure 3. There does not appear to be any obvious fluctuation in the relative supply. At this point, it does not give us the impression that supply itself is enough to explain the changes in the HIGHED wage premium.

Moving on to measure the relative demand of HIGHED graduates, we use the relationship between the log of relative wages, demand and the log of relative supply as follows: -

$$\log RW = \frac{1}{\sigma} [D(t) - \log RS] \quad (2)$$

where

log RW is the log of relative wages,

$\sigma$  is the elasticity of substitution between  
HIGHED and LOWSEC qualifiers,

D(t) is the relative demand and

log RS is the log of relative supply.

Rearranging equation (2), relative demand can be calculated using the following equation: -

$$D(t) = \sigma \log RW + \log RS \quad (3)$$

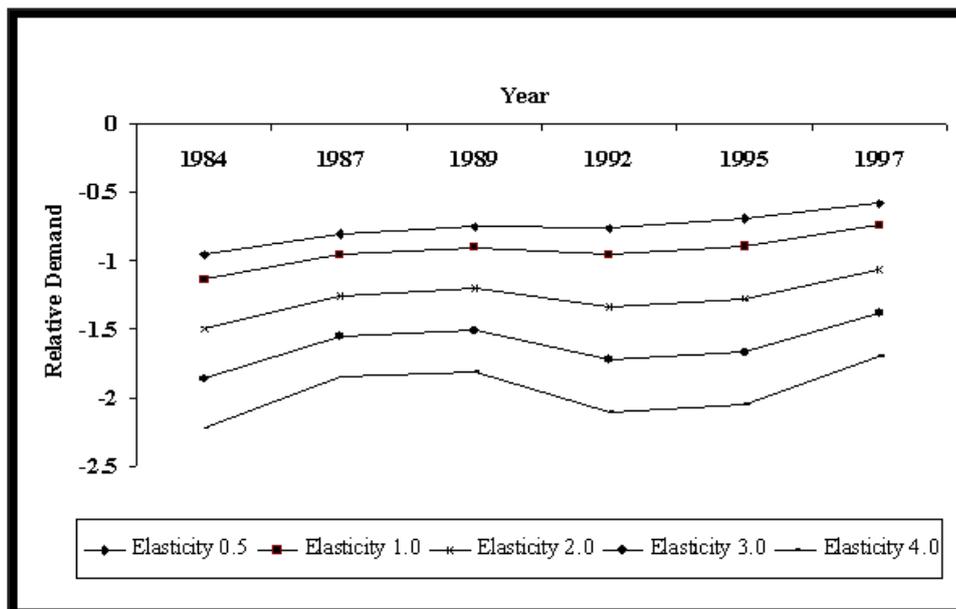
We substitute  $\sigma$  with various elasticities of substitution to measure relative demand. We use  $\sigma$  ranging from 0.5 to 4. Figure 4 shows the measured log of relative demand with the different elasticities of substitution.

Looking across the board, there is an upward trend in the log of relative demand of the HIGHED graduates. At the lower levels of  $\sigma$ , the upward slope of the relative demand curve is markedly clearer (when  $\sigma$  is from 0.5 to 2) compared to the log of relative demand with higher elasticity of substitution (when  $\sigma$  is equal to 2.0 and above).

### Conclusion

This paper examines the returns to education over time in Malaysia and attempts to provide an explanation of a probable cause for the increasing marginal gross returns to the higher education level. The findings show that the relative demand for higher educated (HIGHED) workers has been increasing amidst increasing relative supply from 1984 to 1997. The time period of our analysis coincides with the Malaysian industrialisation period. Hence, we may expect the relative demand for higher educated

Figure 4: Relative demand, 1984-1997



workers to have exceeded the supply of higher educated workers given the accelerated industrial development in the mid-1980s. The increased demand for higher educated workers is further plausible considering that relative wages in Malaysia have increased from 1984 to 1997.

### Policy Implication

These results have policy implications on the Malaysian labour market. If an increasing demand for higher skilled labour continues to exist, the supply of skilled labour needs to be monitored. Are we facing a condition of skill shortage or is there a case of mismatches in the labour market (i.e. conditions of over-education or under-education or inadequate skills supply). Future research could attempt to investigate the more specific causes of the increased demand for higher skilled labour.

### References

Appleton, S., Bigsten, A., and Kulundu Manda, D. (1999). Educational Expansion and Economic Decline: Returns to Education in Kenya 1978-1995 WPS/99-6. Centre for the Study of African Economics, University of Oxford.

Arias, Omar, and McMahon, W.M. (2000). "Dynamic Rates of Return to Education in the U.S.," Economics of Education Review, Vol. 20 (1), pp. 121-138.

Chevalier, A. and Walker, I. (1999). Further Results on the Returns to Education in the UK. Discussion paper, July 1999, Keele University.

Demetriades, E. and Psacharopoulos, G. (1987). "Educational Expansion and the Returns to Education: Evidence from Cyprus." International Labour Review, Vol. 26(5), pp. 597-602.

Duraisamy, P. (2000). Changes in Returns to Education in India, 1983-94: By Gender, Age-Cohort and Location. Economic Growth Centre, Yale University, Centre Discussion Paper No. 815.

Funkhouser, Edward (1998). "Changes in the Returns to Education in Costa Rica." Journal of Development Economics, Vol. 57, pp. 289-317.

Gindling, T.H., Goldfarb, Marsha, and Chang, Chun-Chig. (1995). "Changing Returns to Education in Taiwan: 1978-91." World Development, Vol. 23(2), pp. 343-356.

Green, F., Dickerson, A., and Arbache, J.S. (2000). "A Picture of Wage Inequality and the Allocation of Labour Through a Period of Trade Liberalisation: The Case of Brazil." World Development, Vol. 29 (11), pp. 1923-1939.

Hægeland, Torbjørn, Klette, Tor Jakob and Salvanes, Kjell G. (1999). "Declining Returns to Education in Norway? Comparing Estimates across Cohorts, Sectors and Over Time." Scandinavian Journal of Economics, Vol. 101 (4), pp. 555-576.

Hartog, J., Pereira, Pedro T., and Vieira, José A.C. (2001). "Changing Returns to Education in Portugal during the 1980s and Early 1990s: OLS and Quantile Regression Estimators." Applied Economics, Vol. 33, pp. 1021-1037.

Katz, L.F. and Murphy, K.M. (1992). "Changes in Relative Wages, 1963-1987: Supply and Demand Factors." Quarterly Journal of Economics, Vol.107 (1), pp. 35-78.

Palme, Marten O., and Wright, Robert E. (1998). "Changes in the Rate of Return to Education in Sweden: 1968-1991." Applied Economics, Vol. 30, pp.1653-1663.

Riveros, L.A. (1990). "The Economic Return to Schooling in Chile. An Analysis of its Long-term Fluctuations." Economics of Education Review, Vol. 9 (2), pp.111-121.

Ryoo, J.K., Nam, Y-S and Carnoy, M. (1993). "Changing Rates of Return to Education over Time: A Korean Case Study." Economics of Education Review, Vol. 12(1), pp. 71-80.

Vila, Luis-Eduardo, and Mora, José-Ginés. (1998). "Changing Returns to Education in Spain during the 1980s." Economics of Education Review, Vol. 17 (2), pp. 173-178.

### (Endnotes)

<sup>1</sup> Declining returns were found in Chile, Cyprus, Kenya, Costa Rica, Sweden and India while increasing returns were detected in Korea, Spain, the United States, United Kingdom and Portugal. Another category of studies showed that there were stable returns over time in Taiwan, Brazil and Norway.

<sup>2</sup> We justify the usage of these two levels of education by arguing that basic education was a minimum of 9 years (until the change in 1997 to extend basic education in Malaysia to 11 years), hence we can consider the LOWSEC education level as a benchmark for low-skilled individuals. On the higher end of the skill level, HIGHED would be an appropriate proxy considering the emphasis of the Government in attempting to increase the number of degree holders in the last decade.

<sup>3</sup> These regressions do not contain an intercept term and have White corrected Standard errors.

# RATES OF RETURN TO TERTIARY EDUCATION: A STUDY IN HUMAN CAPITAL DEVELOPMENT IN MALAYSIA FOR THE YEAR 2000

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## Introduction

Education is both a public good and a market commodity. As a public good, it is the responsibility of a responsible government to use scarce national resources for education in an optimal way. But as the government cannot meet all the demand for tertiary education, it has allowed private sector initiatives to set up private colleges to sell education as a commodity. Government and private individuals alike need to know the level of rates of return to their resources used in tertiary education to reflect the efficiency of the allocation of resources and the profitability of tertiary education as individual commitments.

Common understanding has it that those with more education receive more earnings in their lifetime of work because education improves work productivity and thereby enables those with more education to obtain higher earnings. In recognition of this, the Malaysian government has since 1996 increased its allocation of funds for education from RM10.85 billion to RM14.08 billion in 2000. Such massive expenditures on education were made to garner potential increases in worker productivity. Expenditures on improving educational attainment are therefore regarded as investment in human capital, endowing the academically successful with the capacity to improve their productivity by creating assets in the form of skills and knowledge.

In this study, it is assumed that people invest in tertiary education to enable them to raise their productivity and thereby improve their earnings. If indeed education is an investment, economists and educationists alike would surely be interested in knowing the profitability of such investments. As the resources invested in education could also have been used for different investment purposes that would similarly bring in returns, it is necessary to determine which form of investment should be the investment choice. The rates of return to education would therefore reflect the efficiency of resource allocation for educational purposes in Malaysia.

## Methodology

The purpose of this study is to calculate the rates of return to education in the various fields of study at the tertiary level. The conceptual framework for this study is the Human Capital Theory which postulates that differences in earnings at work are largely due to differences in labour productivity as a result of varying amounts of education obtained by individuals. The higher the level of education obtained by the individual, the more productive the individual becomes and thereby merit higher earnings. If educational expenditure is treated as investments to develop human skills or human capital, then the yield or rates of return to such investments can be calculated in much the same way as for investments in physical capital. The use of a Cost-benefit analysis is appropriate here where traditionally, the rates of return are found by solving for  $r$  in Psachoropoulos' estimating equation of

$$\sum_{t=-s}^0 (C_h + W_{h-1})_t (1+r)^t = \sum_{t=1}^n (W_h - W_{h-1})_t (1+r)^t$$

where  $s$  represents the length in years of school cycle for the higher level of schooling, and  $n$  is the expected work life of the graduate of the higher level of schooling,  $C_h$  is the costs of education at the higher level,  $W_h$  is the earnings of a higher level of schooling graduate while  $W_{h-1}$  is the earnings of the a lower level of schooling graduate.

For the purpose of this study, the above equation is now modified to

$$\sum_{t=-u}^0 (Cu + Ws)_t (1+r)^t = \sum_{t=1}^n (Wu - Ws)_t (1+r)^t$$

where  $u$  = length of tertiary education in years  
 $W_s$  = earnings of secondary school graduate  
 $W_u$  = earnings of tertiary graduate  
 $t$  = time (in years)  
 $n$  = length of work life of tertiary graduate  
 $r$  = rate of return

The value of  $n$  depends on whether the individual enters a public university or a private college. The entry qualification for a public university is an STPM obtainable after a further 2 years of sixth form studies after the SPM which is deemed eligible for private college studies if the individual has obtained 5 credits. Thus the age of entry for public university studies is at 20, while that for private colleges is at 18 years old. Age at graduation from tertiary studies depends on course pursued and subsequently affects the length of working life after graduation.

The data to calculate the rate of return as denoted in the estimating equation above are data on costs of education and the benefits of education, namely the earnings differentials between that of the tertiary graduate and that of the SPM-qualified worker, assumed to be a clerical officer, a post that does not require further training of the SPM-qualified school leaver.

The data on costs of public university education were obtained from Ghazali Othman's study carried out in 2001, while data on costs of private college education were obtained through individual surveys. Costs of education refer to the expenditure tertiary students pay for their tuition, room and board, books, materials, transport and other related expenditures. Data on benefits of education, especially those of the earnings differentials between university graduates and the non-graduates working in the civil service were obtained from the New Remuneration

System while data on earnings for those working in the private sector were largely extrapolated by regressions on data sourced from the Malaysian Employers Federation Salary and Benefits Survey for the year 2001. The earnings differentials were obtained after comparison of post-tax earnings of university graduates to SPM-qualified clerical workers in both the civil service and private sector employment.

The private rates of return were thus calculated for public university and private college graduates working in the civil service and private sector employment.

### Findings and Discussion

Table 1 below displays private rates of return to tertiary education in the various fields of study and sectors of employment.

The rates obtained above are unadjusted rates and are rather conservative ones in that the tax exemptions considered for the purpose of this study are minimal, being just the personal exemption and the personal tax rebate. Together, however, the rates indicate that:

1. It pays to earn a degree, especially from the public universities in Malaysia. The rates of return for tertiary graduates, irrespective of public universities or private colleges, range from 9.57% to 19.86% except for private college medical graduates who obtain 4.19% in civil service and 5.67% in private employment. All rates obtained above were better than those for alternative investments of fixed deposits, government bonds or other financial instruments.

**Table 1: Private rates of return to tertiary education in the various fields of study and sectors of employment (%)**

Field of Study	Public University Graduates in		Private University Graduates in	
	Civil Service (%)	Private Employment (%)	Civil Service (%)	Private Employment (%)
Arts	12.51	15.95	9.76	12.00
Science	12.79	19.25	13.75	19.86
Computer Science	12.78	16.97	11.15	14.37
Medicine	12.88	16.03	4.19	5.67
Engineering	11.14	17.97	9.15	18.84
Accountancy	12.76	13.63	13.21	13.89
Law	10.45	14.79	9.57	13.80

2. Rates of return for graduates in private sector employment are higher than those in civil service, indicating that the private sector pays better emoluments.
3. Comparing discipline for discipline, public university graduates obtain better rates than those from private higher educational institutions. This is largely because of the higher costs of education at private higher educational institutions.
4. Other than costs, length of study also affects the rates in that lower rates are obtained for disciplines that require a longer period of study such as medicine, law and accountancy compared to the arts and sciences.
5. Science graduates from private higher educational institutions seem to obtain better rates than their counterparts from public universities despite the higher costs in the former. This, however, is because in the estimation of rates for science majors, data on costs were culled from students of Tunku Abdul Rahman College which, although not a private college, is privately administered.
6. Accountancy graduates from private colleges also seem to fare better than public university accountancy graduates because accountancy qualifications from private colleges are affiliated to world accounting bodies and therefore are more accepted by private companies.
7. Science-based disciplines such as science, computer science, engineering and medicine [from public universities] obtain better rates than the arts or humanities.
8. Rates of return for Law graduates seem to lag behind most of the other professions or disciplines mainly because of the long process in becoming a full-fledged lawyer.

in science-related disciplines such as computer science, general sciences and engineering. Their rates of return suggest that more private higher educational institutions for such disciplines are sustainable.

Despite the present low rates of return for private college medical education, such a scenario is set to change when costs are reduced with more new private medical colleges coming on stream. The reverse policy of raising university fees under the concept of corporatizing public universities will cause rates of return to decrease. Raising fees too will price tertiary education out of the reach of the less financially- able unless loan schemes are universally and easily available, especially for private higher education. If it is necessary to raise fees, they should be imposed on disciplines with high rates of return.

## References

- Ashenfelter, O. (1993). How Convincing is the Evidence Linking Education and Income? The Forty-Second Joseph Fisher Lecture in Commerce, University of Adelaide.
- Borjas, G.J. (1996). Labor Economics. New York: McGraw-Hill Companies Inc.
- Ghazali Othman. (2001). Kajian Sara Hidup Pelajar di Institusi Pengajian Tinggi Awam di Malaysia. Universiti Sains Malaysia: Institut Penyelidikan Pendidikan Tinggi Negara.
- Kolej Tunku Abdul Rahman. (2002). Prospectus 2001/2002. Kuala Lumpur: Syarikat Percetakan Tass Sdn. Bhd.
- Lee M.N.N. (1999). Private Higher Education in Malaysia. Monograph Series No.2/1999. Universiti Sains Malaysia
- Malaysian Employers Federation (2001). Salary and Fringe Benefits Survey for Executives 2001. Petaling Jaya: Malaysian Employers Federation.
- Psacharopoulos, G., and Patrinos, H.A. (2002). Returns to Education: An International Further Update. World Bank Policy Research Working Paper 2881, September 2002.
- Rathje, K. (1999). "Rates of Return to Advanced Education in Alberta." The Expert Witness Newsletter. Winter 1999 Vol.4 No 4. Economica Ltd.

## Conclusion

High private rates of return suggest that educational investments are profitable to private individuals. More private investments in education should be made, especially

# Thinking Styles of Malay Undergraduates in a Malaysian Public University: A Case Study

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## Introduction

In embracing the challenges of a globalised world, individuals must possess a balanced thinking competency. They must have the inclination to use the right-brain to creatively produce new ideas and at the same time utilize the left-brain to increase their analytical and critical thinking skills.

In professional settings, creative, analytical and critical thinking skills are among the skills most required by employers, particularly in private sectors. Creative thinking is important in a globalised market because it promotes a progressive, dynamic and proactive stance which ensures competitiveness in an open market. Analytical thinking enables facts and information to be processed in a detailed and systematic manner. Critical thinking, on the other hand, ensures that flaws and weaknesses can be identified.

Various studies have shown that Malay graduates tend to perform poorly in their studies (Morshidi Sirat et al., 2003). It has also been shown that the majority of unemployed graduates in Malaysia are Malays. It is imperative therefore to conduct studies which analyse and explore the thinking or mindset of the Malays in higher education as such findings may reveal vital clues as to the possible causes of their weaknesses.

The aim of this paper is to report on a preliminary case study on the thinking styles of Malay undergraduates. The study seeks to establish what thinking styles are most and least preferred by the respondents.

## Methodology

In this case study, a sampling of 30 students from Universiti Sains Malaysia was chosen. They comprise second and final year students from both Arts and Science courses. Performa Profiling, introduced by Ned Herrmann, was the instrument employed in this study. Performa Profiling is a tool to identify the thinking styles preferred by particular individuals based on four quadrants. Each quadrant reflects different thinking preferences as shown in Table 1.

Table 1: Ned Herrmann's performa profiling

<p><b>Quadrant A</b> Top Left</p> <p>Analytical Logical Critical Rational Fact based</p>	<p><b>Quadrant D</b> Top Right</p> <p>Holistic Creative Integrative Intuitive Synthesising</p>
<p><b>Quadrant B</b> Bottom Left</p> <p>Detailed Conservative Control Planned Systematic</p>	<p><b>Quadrant C</b> Bottom Right</p> <p>Emotional Spiritual Share Interpersonal Symbolic</p>

This instrument reflects how an individual manages his/her thinking; whether there is a preference to use the left hemisphere or right hemisphere of the brain. To establish their preferences, the respondents were requested to allocate points to each of the thinking styles listed in table 1. The points range from 25 to indicate high preference to 5 to indicate low preference.

## Findings

In general, the Malay undergraduates in this study did not display a balanced dominance between the left and the right side of the brain. They preferred using the left compared to the right side of the brain. A majority of them allocated high points for the thinking styles controlled by the left brain, particularly those in Quadrant A. 15 respondents allocated maximum points for analytical thinking styles, 13 for logical thinking and 17 for rational thinking. Only

one respondent granted maximum point for critical thinking while two respondents assigned maximum points for fact-based thinking. This indicates that in general, the respondents were less inclined to prefer factual and critical thinking styles (see Table 2).

The second preferred thinking styles are those dominated by the lower left hemisphere of the brain. Of the various thinking styles involved, most respondents preferred detailed thinking which concentrates on finer points. 12 respondents assigned it the highest points. Other thinking styles in this category received average points. Systematic thinking was given maximum points by six respondents,

Insofar as Quadrant C is concerned, the respondents were relatively keen on emotional and spiritual thinking styles. Only seven respondents assigned them maximum points. Meanwhile, interpersonal thinking style was only given maximum points by six respondents while sharing and symbolic thinking styles are given maximum points by two respondents each. This implies that, the respondents generally had average preferences towards humanistic aspects of thinking as indicated by emotive and spiritual thinking styles. They also displayed a lower inclination towards sharing and symbolic thinking.

**Table 2: Points allocated by respondents for various thinking styles**

Quadrant A	25	20	15	10	5	Total Respondents	Quadrant D	25	20	15	10	5	Total Respondents
Analytical	15	5	6	2	2	30	Holistic	5	6	6	6	7	30
Logical	13	7	7	2	1	30	Creative	11	7	5	5	2	30
Critical	1	6	7	5	11	30	Integrative	0	2	5	5	18	30
Rational	17	6	4	2	1	30	Intuitive	9	3	4	7	7	30
Fact based	2	7	3	9	9	30	Synthesising	1	6	11	10	2	30
Quadrant B	25	20	15	10	5	Total Respondents	Quadrant C	25	20	15	10	5	Total Respondents
Detailed	12	5	7	4	2	30	Emotional	7	5	3	8	7	30
Conservative	3	8	7	8	4	30	Spiritual	7	6	8	6	3	30
Control	1	4	9	8	8	30	Share	2	6	8	9	5	30
Planned	5	8	6	3	8	30	Interpersonal	6	4	3	9	8	30
Systematic	6	7	5	7	5	30	Symbolic	2	2	4	14	8	30

planned thinking was most preferred by five respondents, and conservative thinking, three respondents.

Thinking styles dominated by the right hemisphere of the brain were less preferred by respondents. The findings indicate that the respondents were however more inclined to choose Quadrant D, which represents the top right hemisphere of the brain over thinking styles in Quadrant C. Creative thinking is most preferred with 11 respondents giving it maximum points. Intuitive thinking received maximum points from only nine respondents. All the other thinking styles, particularly integrated thinking, are assigned the minimum point of 5. This indicates that while the respondents display some interest in creative and intuitive thinking, they were less interested in thinking styles which require them to view something globally, to perform multi-tasking and to combine ideas.

### Conclusion and Implication

This study is by no means conclusive due to the small sample size. However, it offers a general picture of how Malay undergraduates may think.

The study shows that the Malay undergraduates preferred to utilise the left hemisphere of the brain when thinking while the right brain was given less prominence. The influence of the education system at school could be a contributing factor. Scholars such as Abdullah Hasan and Aion Mohamad (2000) and John Arul Phillip (1997) argue that the use of the right side of the brain is not emphasized in the education system. As a result, students may be efficient at gathering information and answering questions based on ‘what’, but face difficulties in solving application problems and questions based on ‘how’.

Interestingly, although there is a distinct preference for analysis and logic, the respondents were less inclined to engage in critical thinking. Critical thinking requires detailed evaluation of the weaknesses or validity of certain ideas. It requires a provocative and inquisitive mind to challenge rather than blindly accepting an idea. These characteristics are significantly absent in the Performa profiling of the respondents. The findings are consistent with the view offered by The Royal Professor Ungku Aziz who asserts that the direct consequence of the Malay people's reluctance and fear of being critical makes them fearful of challenges. This is partly due to the conservative nature of the Malay tradition, which values hierarchical respect and humility. As a direct consequence, they appear as passive and less competitive in the job market.

The Malay undergraduates preferred to utilise the left hemisphere of the brain when thinking while the right brain was given less prominence.

Apart from critical thinking, creativity is needed to ensure that Malays remain competitive. Although the respondents indicated interest in creativity, as the findings reveal, their preference for creative thinking was, at best, average. The problem is compounded by the fact that synthesis, holistic and integrative thinking are styles that the respondents least preferred. These thinking styles are essential in generating creative ideas. Consequently, the respondents may find generating creative ideas difficult, thus giving the impression that they lack general knowledge and have narrow perceptions. In working environment, the lack of these thinking styles may hamper their ability to accept new ideas or out-of-the-box solutions.

The study also reflects the respondents' interaction patterns, which show a lack of preference for inter-personal thinking styles and sharing. This tendency may limit their success in teamwork situations, either at university or in work place. People who have difficulties interacting with others will face similar problems in adapting to new places or situation. This is supported by Dr. Abdul Samad (in Wahid Hashim: 2001) who claims that Malay students have

a tendency to socialise only within their group, among Malays and among those who originate from the same state. 'Networking' and 'teamwork' are skills highly demanded by employers. The lack of such skills would close many doors and limit their opportunities for promotion.

In general, it can be said that Malay undergraduates are passive and have the inclination to view things as black and white, lack the ability to compete and have limited flexibility

in their perceptions of others. In the age where the job markets are extremely limited, they need a significant paradigm shift in order to respond accordingly. Most significantly, Malay undergraduates need to reassess the changes that are currently dictated by the workplace and respond proactively.

## References

- Abdul Fatah Hasan. (1998). Pemikiran Keseluruhan Otak. Utusan Publications and Distributors Sdn. Bhd.: Selangor.
- Abdullah Hassan dan Aion Mohd. (2000). Kursus Berfikir untuk Kolej dan Universiti. PTS Publications and Distributors Sdn Bhd.: Kuala Lumpur.
- John Arul Phillips. (1997). Pengajaran Kemahiran Berfikir. Utusan Publications and Distributors Sdn Bhd.: Selangor.
- Morshidi Sirat et al. (2003). Kajian Pengangguran di Kalangan Siswazah. IPPTN: Penang.
- Wahid Hashim. (2001). "Pelajar Melayu - Fikiran Bercapah." Utusan Malaysia, 17 Mei 2001.

## Workshop on Ethnic Integration in Public Universities

On 22<sup>nd</sup> June 2004, IPPTN and University Sains Malaysia, with the cooperation of the Department of Higher Education, held a workshop on ethnic integration in Public Universities study at Equatorial Hotel, Penang. Officiated by the Chief Secretary, Ministry of Higher Education, Y. Bhg. Dato' Dr. Mohd. Yahya Nordin, the workshop was intended to present major findings obtained from the study and to gather feedback from participants.

Participants comprised senior administrative staffs from various Institutions of Higher Learning, Ministry of Higher Education, National Unity Department, Ministry of Social and Women Development, Association of Private Learning Institutions and NGOs.

**Attentive....**workshop participants looking for effective solutions on ethnic polarisation among students.

The study, which involved 6,267 students from twelve public universities, found that on the whole ethnic integration existed among students of all races resulting from racial tolerance, understanding and respect. Nevertheless, it was also found that most students preferred to be among people of their own race and university administration was said to be among the contributing factors.

- Reported by Sharifah Ismail



**Assoc. Prof. Dr. Mansor Mohd. Noor**  
(Research Leader)



**Serious...** Dato' Dr. Mohd. Yahya Nordin discussing with Prof. Morshidi Sirat.



**What do you think?...** serious discussion during coffee break

# The South Zone Undergraduate Colloquium

On 21<sup>st</sup> August 2004, Universiti Teknologi Malaysia in Skudai, Johor, organised a one-day colloquium called *Kolokium Mahasiswa Zon Selatan (KOMSIS)*. Officiated by the special advisor for *Majlis Tindakan Ekonomi Negara (MTEN)*, YB Dato' Rahmah Binti Hj. Mohd Nor, the colloquium aimed at instilling and developing undergraduates' awareness about their roles and responsibilities today to the university, religion, race and nation in their pursuit to become individuals with excellence, glory and distinction.

Among the invited speakers were the Ministry of Higher Education parliamentary secretary, YB Datuk Dr. Adham Baba and IPPTN's Associate Fellow, Dr. Munir Shuib.

Datuk Dr Adham Baba, in his paper on the directions of higher education in Malaysia, said that undergraduates needed to change their mindset

in order to be internationally competitive. The thinking in the workplace, he reiterated, has shifted from P-worker (Product worker) to K-worker (Knowledge worker) and is now moving towards what he called "K-cooperation worker", a concept in which individuals of different disciplines and background share their knowledge and expertise towards a common goal.

Dr. Munir Shuib, in his paper, addressed the issue of unemployment in Malaysia. According to him, the problem of unemployment in Malaysia currently was not serious but must not be ignored, as it affected not just graduates but also the nation as a whole socially, economically and politically. Citing recent findings from studies conducted by IPPTN, he reiterated unemployment was a multi-dimensional issue; its causes and effects involved

various parties including Institutions of Higher Learning, government agencies, NGOs, graduates as well as employers.

The colloquium ended with a discussion session among undergraduate leaders and participants on challenges faced by undergraduates pertaining to globalisation.

▪ Reported by Nor Azreen Zainul



**Dr. Munir Shuib:** presented a paper on unemployment issue.

## PUBLICATIONS



IPPTN has just published its fourth monograph entitled 'Kemasukan Pelajar ke Institusi Pengajian Tinggi Awam 2000-2004: Deskripsi Pola dan Trend Mengikut Negeri'. The monograph is jointly written by Profesor Morshidi Sirat, Assoc. Prof. Ruslan Rainis, and Dr. Tarmiji Masron. It is based on the information obtained from Higher Education Department, Ministry of Higher Education. This write-up will be useful in helping Public Institutions of Higher Learning to ascertain their institutional image and design suitable orientational package for their students.

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ISSN: 1675-6428



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