Does Non-Conventional Education Investment Make Profitable Private Return in Malaysia?

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Abstract

This study provides estimates of the private returns of tertiary non-conventional education (NCE) for management graduates in Malaysia. The term 'non-conventional education' used in this research refers to distance learning and part-time management degree program graduates. We evaluate the private returns using basic concept of educational cost and benefit analysis. The data used were derived from alumni dataset from Universiti Putra Malaysia (UPM) and National University of Malaysia (UKM) alumni division. Calculating the private returns of lifetime earnings, we find that the internal rates of return for NCE graduates are similar in both public and private sectors. Nevertheless, the results presented in this study are the first approximation ever of the private rate of returns to NCE in Malaysia, based on surveys on management NCE graduates in the Malaysian labor market. This study also seeks to contribute to the existing knowledge of economic analysis on lifelong learning in Malaysia.

Keywords: Non-conventional education, Private return

1. Introduction

Education in Malaysia is an on-going effort towards further developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious. It is widely believed that education plays an important role in economic development. Countries with better educated work forces tend to have higher incomes, less poverty and slower rates of population growth than those with less well educated workforces (Schultz, 1961). For the past 40 years, serious consideration has been given to the role of human capital in economic growth and development. Spurred by the work of Becker (1964), Mincer (1974), Schultz (1961) and others economists have estimated the economic returns to schooling over time and space. It is generally recognized that education plays an important role in earnings determination. Literally hundreds of studies have shown that schooling is an extremely important factor explaining variations in wages and salaries, and that the returns to education investments may be quite large (Denison, 1984). Such returns to investment in human capital perspective have been estimated since the late 1950s. Over 50 years history of estimates of return on investment in education, have been reviewed and the empirical results in attempts to establish a pattern. The rise in earnings inequality experienced during the 1980s and 1990s in many develop and developing countries has led to renew interest in estimates of return to education (Psacharopoulos, 1994).

2. Overview of Non-Conventional Education in Malaysia

The concept of NCE has been a significant focus of discussion in the adult and continuing professional education literature throughout the world. NCE has a number of different meanings since the term was introduced in the early

1900s. In the broad context of adult and continuing education, the current meanings and roles of NCE are viewed differently among various scholars. Over the last decades, discussions about NCE have formed international policy related to formal, informal, and workforce learning experience (Comford, 2002). Basically, NCE allows students to pursue a degree without having to move to where a university is. In general, NCE allows students to live in one place while the university is located somewhere else. Traditionally, NCE has been achieved through correspondence courses, where course material arrived in the mail and students mailed their projects to the universities for grading.

Today, most NCE is done via the internet, although some courses and seminars are also available via teleconferencing. Some of NCE programs are little more than single classes or seminars and offer degree programs that last several years. There are even NCE programs that offer the learning of practical skills sets (OECD, 1996). Basically education offers many choices to allow people to take part in lifelong learning. Employees need to learn new skills in order to stay competitive. Technologies are changing so quickly that a person's job skills become outdated if his or her knowledge is not upgraded. In today's specialized world, accreditation, degrees, and certification are becoming more important than ever and employers and clients alike will want to see proof of formal education if the employee has the skills necessary to complete specific jobs. Continuing education is one place to get this specialized knowledge and acknowledgment. Currently many employers sponsor continuing education programs for employees in order to ensure that employees keep their skills up to date. Plus, many people have come to realize that continuing education can be a way pursuing passions over one's career and to gain personal fulfillment.

Beginning early 1970's Universiti Sains Malaysia (USM) introduced distance learning as one of their strategies towards the democratization of higher education. By early 1990's, 6 more universities introduced distance education programs in Malaysia. Working adults can pursue tertiary education at undergraduate and postgraduate levels while remaining in full-time employment. Courses at various levels are offered on a part-time basis. A milestone in the development of distance education was the establishment of Malaysia's first Open University of Malaysia (OUM), a consortium of 11 public universities begins operating in 2001. OUM is currently offering degree programs for teachers in a joint effort with the teacher's education division of the Ministry of Education. Various other courses are also being offered. Public and private institutions in Malaysia are also currently offering programs for working professionals. Figure 1, shows clearly the number of NCE enrollments for the period 1997 to 2008; and the enrollment seems to show an upward trend. This indicates the importance of NCE for adults in Malaysia and the alertness of government to introduce more marketable education which can improve human capital capability in the future.

The debate on the concept of NCE has moved from one that focuses on employability and economic concerns to a broader definition that includes all phases and forms of learning from pre-school to post-retirement as well as the whole spectrum of formal, non-formal and informal learning. The consensus is that the four broad objectives of learning should include active citizenship, personal fulfillment, social inclusion as well as employment-related aspects. Similarly, the OECD (1996) defines lifelong learning as:

'All purposeful learning activity from the cradle to the grave, that aims to improve knowledge and competencies for all individuals who wish to participate in learning activities'

Going by the above definitions the several policy statements, strategies, initiatives as well as investment in education, training and human resource development are indicators of public sector commitment in developing lifelong learning as a culture in Malaysia. Indeed this is continuously being pursued under the various five year national development plans (Ninth Malaysia Plan, 2006). Taking the concept of NCE and lifelong learning to include all learning activities which include formal, non-formal; and informal learning activities, it is largely formal learning, and to a much lesser extent non-formal learning that can be described as the core of lifelong learning programs and activities in the Malaysian context. Traditionally and up to now, the public sector is the major provider for education, training and human resource development. It is also apparent that, presently, the concept of NCE in Malaysia is clearly linked to productivity and employability as expressed in the Malaysia's Third Outline Perspective Plan (2001) as follows:

'Lifelong learning will become increasingly important in the knowledge-based economy where knowledge and skills need to be continuously updated and upgraded. New skills and expertise will be required to improve employability and productivity'

Once education becomes an important factor to develop the nation's human capital, it is also important for the Malaysian government to develop the Knowledge Based Economy Development Index (KDI). The main role of KDI is to monitor the progress of the economy towards becoming more knowledge-based. The overall KDI increased by 591 points from 2,413 in 2000 to 3,004 in 2005 with improvements recorded in all areas, as shown in Figure 2. The most significant improvement was in computer infrastructure, which registered an increase of

196.4% in terms of scores between 2000 and 2005, followed by research and development (R&D) and technology at 25.9% and education and training at 22.9% (Ninth Malaysia Plan, 2006). In summary, it is clear that the Malaysian government has made a strong commitment towards NCE by the specific references made in the Ninth Malaysia Plan documents. The notion of NCE as enunciated is closely associated with productivity and employability. Although specific strategies have been prescribed, its implementation will be followed through by the respective agencies. Meanwhile, the existing capacity of the higher public institution is not sufficient to meet the ever increasing demand for education. Consequently, some candidates are continuing their NCE with distance and part-time education programs in private colleges, in order to receive a degree with the intention of increasing their future earnings.

3. Literature Review

Classical studies on earnings affirm that, among the factors that influence individuals labor income, are variables such as sex, ethnicity and civil status. Those variables should not have impact on human capital, defining it as a collection of abilities and results of investments in personal productivity. If a relationship between these demographic factors and human capital is detected, their influence could be attributed to the social structure (Mincer, 1974). Although many literatures have devoted in understanding of the earnings increases over the lifecycle, the dominant explanation for an upward sloping wage profile remains the general human capital model. Individuals invest in worker-financed general human capital, initially lowering the wage, but subsequently increasing productivity and wages. The shape of the earning-experience profile reflects the intensity and time pattern of training investments, coupled with the rate of return from these investments (Becker, 1966).

The cost of any investment must be measured by its opportunity cost, rather than simply by monetary expenditures. Economic analysis of investment in education thus attempts to estimate the total cost of an investment in terms of alternative opportunities forgone (Woodhall, 2004). The opportunity cost of student time can be estimated in terms of the value of the alternative opportunities that are forgone by society; the monetary value of this cost can be derived simply by calculating the earnings forgone. The literature on education cost analysis in developing countries is quite diverse. It includes studies that vary in their scope of analysis, such as the modes of educational delivery, levels of schooling, types of education, geographical locations, trends over time, as well as the scale of education interventions. The diversity of the studies is further multiplied by the different types of economic analysis in which these studies engage, such as costing, economic feasibility testing, cost reduction, cost effectiveness comparison, cost-benefit comparison, and others (Thias and Carnoy, 1972).

The cost of an intervention can be estimated using a simple and logical approach called the ingredients or resource approach (Levin, 1983). According to this approach, the ingredients used in the intervention are identified and elaborated in the cost functions. In cost analysis, the cost of an ingredient is its opportunity costs, that is, the cost incurred as a result of the ingredient's being used in the given intervention and thus not being available for the use in alternative activities. It is measured as the worth of the ingredient in its best use (Tsang, 1988). An early example is the costing of an educational innovation in elementary schools in Barbados in the 1960's (Durstine and Hudson, 1972). Ammermueller et al. (2008) has studied regarding these aspects in Germany and find that increases in regional unemployment, able to decrease certain percentage of education returns. Therefore, this implies that higher skilled employees are better sheltered from labor market changes with respect to their jobs, but encounter larger wage changes rather than less skilled employees.

Although considerable progress has been made in conceptual understanding of the costs of education, significant practical and theoretical issues remain that make educational costing less than a hard science. Besides being familiar with basic cost concepts and analytical skills, a competent cost analyst needs to be ingenious about using existing costs data. The information basis for educational costing remains in a primitive state in developing countries, and wide gaps exist between the data needed and the data available (Coombs and Hallak, 1987). Besides that, education can actually influence income distributions. Tilak (1989) has examined the relationship between rate of return to education and income distribution and finds that education can reduce poverty and increase nation's income. Tilak's findings is in line with Psacharopoulos (1994); and Woodhall (2004) which summarize that indeed education is able to raise the overall level of income and thus reduce the absolute level of poverty; and thus, change the dispersion of the countries' income.

Using a huge size of wage earned and self-employed workers in Finland, Jordahl et al. (2008) has applied the generalized IV model of Hausman and Taylor to estimate education returns. The findings of the study are not specified clearly because of the sensitivity of the data and lack of information appears in the study. In recent years, studies on educational return are mainly concentrating on the conventional education and lack of studies on NCE return. In term of calculating returns on education, this study has its own strength, because it is never been explored

in Malaysia, and hence, this study may fill the gap. For several reasons, the available information relating to education in Malaysia is currently rather limited. Most of the previous studies on educational returns in Malaysia used Mincerian earnings function (Chung, 2004). However, our study is more useful by the fact that we revise the age-earnings profiles for NCE management graduates in public and private sectors; and we estimate the returns on investment of NCE.

4. Methodology

4.1 Data Collection

This study mainly used cross-sectional data which focus on non-conventional business and management graduates, graduated between the periods 1997-2007. Two public higher learning institutions have been selected as target population of this study that is Universiti Putra Malaysia (UPM) and National University of Malaysia (UKM). The particulars of the graduates, which include address and detail information's addresses has been provided by both universities alumni division. We applied systematic sampling technique with a comprehensive survey which includes individual education investment details and their earnings profiles before and after receiving their NCE degrees. The survey forms have been distributed to the target samples which have been identified using random order sample selection techniques. Although there exist selectivity bias, or sample selection bias when non-random sample selection arise, but this study will not attempt to correct for sample selection biasness using the two-stage estimation procedure because the target sample of study has been identified from the alumni database earlier. Collections of data are then computed into cost and benefit model to calculate the private rate of return for NCE investment.

4.2 Model Specification

The private rate of return is defined as the discounted rate with net present value of future monetary flow is equal to zero. The discount rate is interpreted similar to the yield rate on ordinary investment in education. A positive discount rate means that the investment has a positive return. The best investment will have the highest return. In the case of NCE investment, the internal rate of return (IRR) is the interest rate that equalizes the future flows of additional lifelong age-earnings from an additional cost from the pursued distance education. The private rates of return on education investment are developed from the cost and benefit model introduced by Psacharopoulos and Woodhall (1985). In this study, education investment occurs while an individual is in the middle of his career in the labor market; and benefits are expected to accrue over the life-cycle until mandatory retirement age. The calculations of IRR using cost and benefit approach are structured as follows:

$$\sum_{t=-S}^{t} \frac{C}{(1+r)} = \sum_{n=0}^{n} \frac{W}{(1+r)}$$
.....(1)

The IRR estimation for NCE is similarly to that of the conventional education, except for the inclusion of the opportunity cost and the cost of education investments. The specific general form of cost and benefit model with opportunity cost for NCE are illustrated as follows:

$$\sum_{t=-S}^{t} \left(\frac{C+W^*}{(l+r)} \right) = \sum_{n=0}^{n} \left(\frac{W-W^{**}}{(l+r)} \right) \qquad \dots \dots (2)$$

When earnings increment take into the account, equation (2) will appears as follows:

$$\sum_{t=-S}^{t} \left(\frac{C + W^{*}(1+\theta)}{(1+r)} \right) = \sum_{n=0}^{n} \left(\frac{\{W - W^{**}\}(1+\theta)}{(1+r)} \right) \dots \dots (3)$$

We assume that individual earnings increase (θ >1) continuously over time through the age-earnings profiles. In practices, earnings increment can be expressed as:

$$\sum_{n=0}^{n} \theta = \theta \left(\frac{\theta^n - 1}{\theta - 1} \right) \tag{4}$$

Therefore the model specification can be illustrated as follows:

$$\sum_{t=-S}^{t} C(1+r)^{-t} + W * \sum_{t=-S}^{t} \left(\frac{1+\theta}{1+r}\right) = \sum_{n=0}^{n} (W - W * *) \left\{ \theta \left(\frac{\theta^{n} - 1}{\theta - 1}\right) \right\}$$
(5)

The following specification, express the general form of the elaborate method of estimating returns on NCE:

$$\sum_{t=-S}^{t} C\left\{\frac{\left(1+r\right)^{S}-1}{r}\right\} + W * \left\{\frac{\theta^{S+1}-1}{\theta-1}\right\} = \sum_{n=0}^{n} \left(W - W * *\right) \left\{\theta\left(\frac{\theta^{n}-1}{\theta-1}\right)\right\} \qquad \dots (6)$$

The age-earnings profile of NCE graduates computed in cost and benefit term are shown in equation (7). The education investment costs and opportunity were deducted; and finally the mathematical equation clearly expressed the calculation of return on NCE.

$$\sum_{t=0}^{n} (W - W^{**}) \left\{ \theta \left(\frac{\theta^{n} - 1}{\theta - 1} \right) \right\} - \left(\sum_{t=-S}^{t} C \left\{ \frac{(1+r)^{S} - 1}{r} \right\} + W^{*} \left\{ \frac{\theta^{S+1} - 1}{\theta - 1} \right\} \right) = 0$$
(7)

The following variables uses in the elaborate method are defined as follows:

- C Annual direct costs for NCE
- W Annual earnings for executives with degree qualification
- W* Annual earnings of unskilled workers (Opportunity cost I)
- W** Annual earnings for non-executives (Opportunity cost II)
- n Working life of NCE graduates
- r Internal rate of return (Discount rate)
- S Duration of higher education studies
- t Length of years
- θ Increment in earnings profiles

In many cases, data are not available to show the earnings of workers of different ages and level of education that are necessary for the calculation of age earnings profiles (Woodhall, 2004). Perhaps, in this study the samples for age and earnings profiles were limited to individuals with annual earnings. Therefore we use the average annual earning increments provided by government employees scheme (SSM) and Malaysian Employers Federation (MEF) surveys of salary and fringe to predict the expected lifetime earnings for a NCE graduates in order to predict the future age-earnings profiles. In fact this type of age-earnings profiles prediction method has been used by several researcher, such as Borland (2002); Chapman et al. (2000); and Toikka and Neveu (2004).

Basically, opportunity cost is the typical elements which arise in most of previous studies. However, in our study, the element of opportunity cost arises while the employees are still pursuing their studies with distance and part-time learning, that is while they still remain employed as full-time employee in the labor market. Therefore, we assume that the value of opportunity cost for our sample (while the candidates are still pursuing their NCE) is equal to unskilled workers mean earnings, obtained from MEF non-executives salary and fringe surveys. Table 1 indicates the value of opportunity cost as reported by MEF for the year 2007. Meanwhile, for those in the government sector the net benefit receive by NCE graduates is drawn from government earnings scheme (SSM); and we use N41 earnings schemes as the earning benefit received by public sector employees. Initially N41 schemes represent management and administrative job titles in the public sector for those with degree qualifications. On the other hand, we use N27 scheme as opportunity costs for public sector employees. The reason being the scheme represents earnings for public servant in management and administrative job titles which requires diploma or Higher School Certificate qualifications. Figure 3 shows an average annual earnings growth for public sector employees with N27 and N41 schemes. As for the NCE graduates employed in the private sector, we use the MEF salary and fringe survey reports. As shown in Table 2, we use the average annual earnings increase of overall economic sectors for executives. On the other hand, we use the average earnings increase for non-executives to predict the age-earnings profiles for opportunity costs. Once the prediction has been completed, by using the frequency percentage of annual age-earnings profiles, we plot all the figures accordingly. Figure 5 shows a consistent upward trend of actual and

predicted age-earnings profiles for both employees with the same level of NCE qualification.

6. Findings

Lately, several calculations relating to the rate of return to education use cost and benefit approaches, which is sometimes referred to as the 'elaborate method'. This is based on actual and predicted age-earnings profiles shown in Figure 5, using the data on the costs of education, including both direct costs. Basically, benefits receive by employees represent as positive figures and forgone earnings or an opportunity cost is represented negatively. Generally, private sector employees invest much more than public sector employees for NCE, especially in term of direct costs on education investments. However, the variance is not very significant. Overall, the direct costs of NCE of the employees in both sectors do not have large variances. Nonetheless, the variances are still important for rate of return calculation. Therefore we calculate NCE return separately for both sector employees because they each have their own annual age-earnings profiles. Although, private sector workers received higher pay, but this does not mean that they have achieved higher rate of return on education investments. For the purpose of calculating the rate of return, the mean total of education and the age-earnings profiles of the NCE graduates will be applied in the cost and benefit model. Table 3 presents the mean and standard deviation of all the variables used in this study for both public and private sector employees:

Basically the costs of NCE stem from forgone earnings while studying, which depend upon length of study time and other direct costs. In this study, forgone earnings are described as opportunity costs. In contrast, Figure 5 shows that private returns to private sector employees are significantly lower from the public sector employees. The difference is about 0.2% and this seems that the private returns are nearly equal for both employees. Meanwhile, Figure 6 indicates the demand curve for human capital investment for both public and private sector employees. Basically, a normal demand curve expresses the relationship between price and quantity demanded. In terms of human capital demand curve, the price is considered as the interest rate that has to be paid on borrowed funds or that could have been earned if the money invested in education had been put to some other use. Henceforth the results are contrary to the theoretical expectation where returns to education investment fall as students increase their direct education investment costs (Becker (1964); Psacharopoulos and Woodhall (1985), Schultz (2002); and Patrinos et al. (1994)).

Demand curve for human capital investment shows the marginal rate of return earned from each additional Ringgit's spent on NCE. Thus, the RM27806 spent on NCE by public sector employees yields a rate of return of 30.85%. Meanwhile, for private sector employees, RM29564.44 spent on NCE yields a rate of return of 30.66%. The demand curve for human capital is negatively sloped, implying that the marginal rate of return declines with additional investment in NCE. This happens because of the law of diminishing return. Another reason is that with additional years of NCE leaves a person with fewer working years to recoup the costs of education because most of NCE graduates continue their studies while working in the open labor market.

7. Conclusion

This study has demonstrated that the internal rate of return for public and private sector employees with management NCE degree program. The results of the study suggest that the recent Malaysia's NCE programs, especially management programs are a profitable investment in term of human capital investment perspectives. With regard to the percentage of private rate of return, both public and private employees are still able to receive on the average about 30% returns on NCE. When compare to the previous studies, this amount is considered quite high for a return on tertiary education. Such evidence comes from few studies carried out by Psacharopoulos and Patrinos (2004); Toh and Wong (1999); Bennell (1998); Sandefur and Park (2007); and Menon (2008) which show that private return on conventional tertiary education is around 5-20%. The most important thing need to be highlighted here is that the respondents in sample of this study have invested in NCE management programs while still remain employed full-time in the labor market. Therefore, the age-earnings profile for these particular samples still appears in their earnings profiles plotted positively until the time of their mandatory retirement.

Above all, returns to NCE are useful indicators of productivity; and incentives for individuals to invest in their own human capital. However, more research of this kind is needed for developing country like Malaysia. Further, there is a need for more evidence on the impact of education on earnings using cost and benefit modeling. Nevertheless, the results presented in this study are the first approximation of the private rate of returns to NCE in Malaysia, based on surveys of the management NCE graduates in Malaysia's labor market. Moreover, this study seeks to contribute to the existing knowledge of economic analysis on lifelong learning in Malaysia. The findings of this study needs to be used to create value-added NCE programs in future that can help reform Malaysia's labor productivity and human capital investment.

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	SkilledWorkers	Semi-skills Workers	Unskilled Worker
Maximum	876	652	568
Minimum	1960	1441	1141
Mean	1418	1046	854

Table 1. Opportunity Cost for Non-Conventional Education Investments

Source: Salary and Fringe Benefits Survey for Non-Executives, 2008

Table 2. Average Annual Earnings Increase for Executives and Non-Executives, 2007

	Quartile Analysis for Executive Employees			
Economic Sector	Average	25 th %	50 th %	75 th %
Manufacturing	6.28	5.00	5.80	6.50
Non-Manufacturing	6.22	5.00	5.00	7.00
Overall	6.25	5.00	5.10	6.50
	Quartile Analysis for Non-Executives Employees			
Manufacturing	5.62	4.00	5.00	6.00
Non-Manufacturing	6.00	4.40	5.00	6.60
Overall	5.77	4.20	5.00	6.00

Source: Salary and Fringe Benefits Survey for Executives and Non-Executives, 2008

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	Public Sector	Private Sector	
	(N=57)	(N=51)	Difference
Year of education attainment	3.22	3.13	0.09
	(0.15)	(0.11)	
Age started NCE program	28.12	30.16	-2.04
	(0.88)	(1.05)	
Age completed NCE program	32.01	34.11	-2.10
	(1.03)	(1.21)	
Tuition fees	11985.97	12457.96	-471.99
	(893.97)	(798.23)	
Book expenses cost	1483.82	1123.92	359.90
	(441.03)	(134.90)	
Living expenses	336.36	386.27	-49.91
	(196.16)	(155.04)	
Equipment expenses	1182.35	972.54	209.81
	(264.83)	(189.12)	
Transportation cost	1535.29	1941.17	-405.88
-	(372.96)	(152.37)	
Other expenses	443.82	651.15	-207.33
	(101.90)	(152.37	
Education scholarship	1705.88	1200.00	505.88
	(883.12)	(586.23)	
Study loan	8564.70	10503.92	-1939.22
	(1569.44)	(1385.28)	
Other financial supports	2578.97	2122.23	456.74
(Parents and spouse)	(963.68)	(932.78)	
Total education investment	27298.42	28959.90	-1661.48
	(1774.62)	(1763.43)	
Net education investment	25540.84	27538.38	-1997.54
	(2133.88)	(2016.50)	
Age enter labor market without degree	20.51	19.96	0.55
qualification	(0.67)	(0.52)	
Age started job with NCE qualification	32.29	31.84	0.45
	(1.07)	(0.87)	
Initial earnings with NCE qualification	2101.02	2347.26	-246.24
(monthly)	(105.83)	(179.63)	

Table 3. Sample Descriptive for Non-Conventional Education Graduates in Public and Private Sector

Note: Standard deviations in parentheses



Figure 1. Part-time and Distance Learning Enrollment in Malaysia, 1997-2008 Source: Ministry of Higher Education, 2008



Figure 2. Knowledge-Based Economy Development Index: Malaysia, 2000 and 2005 Source: Ninth Malaysia Plan, 2006



Figure 3. Average Annual Earnings Growth for Public Servant in Malaysia Source: Public Service Department of Malaysia, 2008



Figure 4. Stylized Age-Earnings Profiles for Public and Private Sector Employees



Figure 5. Discounted Present Value of Net Private Return on Non-Conventional Education Investment



Figure 6. Demand Curve for Human Capital Investment on Non-Conventional Education