



Returns on Education for Male-Female Management Graduates in Malaysia

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ABSTRACT

Education is an on-going effort towards further developing a nation in term of human capital investment and returns. Recent economic figures clearly show that, countries with better-educated workforce tend to have higher income, lower poverty rate and slower rate of population growth. Generally, education plays an important role in term of earnings and able to creates earnings discrimination among workers. This study attempts to investigate the private rate of returns for business and management graduates in Malaysia using cost and benefit analysis. In this study, data collection is based on random sampling conducted through the business and management graduates' alumni division. The overall findings clearly indicate positive returns on education for male and female management graduate with an average of 15-30 percentages.

Keywords

Cost and Benefit Analysis; Return on Education

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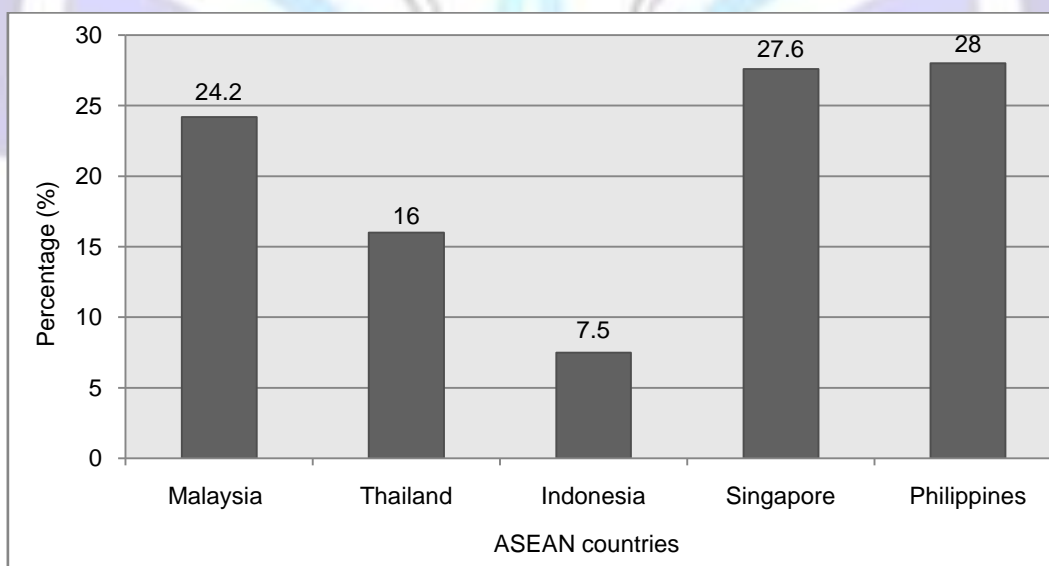
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1. Introduction

Education is widely believed to play an important role in term of economics development for a country. In recent decades, investment in education is an alternative goal for developing countries and on average about 125percent of the government national income is allocated for education development. Literally, hundreds of studies have shown that schooling is an extremely important factor explaining variations in salaries, and therefore the return to education investments is quite large (Denison, 1962). Moreover, for the last five decades, the history of investment in education has been reviewed and the empirical results attempts to establish various pattern of education investment return. The rise in earnings inequality experiences during 1980s and 1990s in many developed and developing countries have led to renewed interest in estimates of return to education (Psacharopoulos, 1994). Although observed school enrollment rates are related to a number of factors under and beyond the household's control, one can argue that private rate of return to education is one of the key contributing factors. Thus, returns to education are useful for designing education policies. In connection with the current Malaysia's national policy which focuses on life-long learning, this exercise can generate two main policy implications. First, if the rate of return to education on average is effectively low and the households perceive education as investment, enrollment is unlikely to respond to increases in the supply of educational services. Second, if the rate of return increases with level of education, the low income households who lack resources because they will face low segment of rate of return (Walker and Woolley, 2002).

One of the main reasons why public policy-makers are willing to invest so much in education is because they believe that education makes workers more productive. There is over whelming evidence that education and earnings are closely linked. Workers in low-income countries, for example, earn just over 11 percent more for each additional year they spend at school. Similarly, workers who have completed primary school can expect to earn 35 percent more than those with no formal schooling. There is little doubt that more educated workers are paid higher wages, it is not clear whether they are also more productive (Becker, 1964).The structural changes in Malaysia's economy over the last 3 decades have contributed to a dynamic employment environment of those with more education. Nowadays, employers are demanding for highly skilled and educated workers; while those who are lack the necessary credentials are relegated to the low wage in labor market. Current Malaysia's education curriculum is regularly revised to ensure the output of graduates is tuned to the technological needs and managerial practices in the growing economy. The amount of public fund channeled to education has been increasing over the years. The absolute amount has increased about 10 times over the last 20 years period. Tertiary education in Malaysia includes education at community colleges, polytechnics, public and private training institutions; and public and private universities. These figures indicate 'educational transformation' in Malaysia because the student enrollment in each level of education shows an increasing trend. The rise in educational attainment took place after the government underlying several policies to establish human capital sustainability in Malaysia. The high participation rate in primary education indicates that Malaysia has achieved near universal primary education, thereby providing the basic foundation towards lifelong learning in future. Figure 1 shows the labor force with tertiary education from selected ASEAN countries in 2010 and it's clearly indicate that, Malaysia is one of the top listed ASEAN country with high volume of labor force with tertiary education attainment with on average of 24 percentage.



Source: World Bank, 2013

Figure 1. Labor force with tertiary education from selected ASEAN countries



2. Literature Review

Theory of investment in human capital that promotes economic growth is actually dates back to the time of Adam Smith and the early classical economists, who emphasized the importance of investing in human skills. In 1960s, Schultz (1961) assumed that education has contributes directly to the growth of national income by improving the skills and productive capacities of the labor force. This important finding led to a flood of studies on the economic value of investment in education. Research in this area slowed in the 1970s, because of a lack of economic growth and a certain ambivalence about the role of education in development. Meanwhile, Hicks (1980) examined the relationship between growth and literacy, as a measure of educational development, and life expectancy in 83 developing countries during the period 1960-1977; and found that the twelve developing countries with the fastest growth rate had well above average levels of literacy and life expectancy. Traditionally, economic analysis of investment and capital tended to concentrate on physical capital, which would generate income in the future by creating productive capacity. Arrazola and Hevia (2008), for example examined three different types of measurement to measure educational return in Spain; and each of the measurement provides different results using different instruments.

The classical economic approach of education is regarded as similar to economic production. In economic production, given production objectives, prices and technology, inputs are transformed into desired output. Blankenau and Simpson (2004) have explored this factor in the context of an endogenous growth model in private and public investment in human capital accumulation. The positive direct effect of public education spending on growth can be diminished or even negated when other determinants of growth are negatively affected by general equilibrium adjustments. The response of growth to public education expenditures may be non-monotonic over the relevant range. Most of growth accounting studies that inserted human besides physical capital used proxies of human capital as 'average years of schooling of the population' and this approach is suitable for macroeconomics studies. Some examples are Young (1995) and Dougherty and Jorgensen (1996).

In many countries, government plays an important role in human capital accumulation by providing funds for formal schooling. A number of studies have formalized link between government education spending and growth by building endogenous growth models, where public education expenditures directly influence human capital accumulation and consequently affect long-run growth (Glomm and Ravikumar, 1998; Kaganovich and Zilcha, 1999; Cassou and Lansing, 2004). In other word, public expenditures have an indirect growth effect by encouraging private investment and this can be found through previous studies done by Zhang (1996), Milesi-Ferretti and Roubini (1998), Hendricks (2001); and Brauningner and Vidal (1999). Recent empirical work on economic growth theory found that increase in educational attainment is not related to economic growth. This contrasts with many micro empirical evidence indicating high returns to human capital investments in both developing and developed countries (Masakazu Hojo, 2003). On the other hand, Temple (1999) pointed out the weak correlation between growth and increases in educational attainment is due to a few influential outliers, and omitting the observations leads to positive and significant coefficient on educational attainment. Knowles and Owen (1995) also found that education is not statistically significant in a range of models that include life expectancy and base-period with per capita output.

Actually, the available information relating to education in Malaysia is currently rather limited. Most of previous studies on education in Malaysia used the standard human capital model and applied with Mincerian earnings function (Chung, 2004). The data used in this study are derived from the two Malaysian Family Life Surveys (MLFS), conducted in 1976 and 1988. The results indicate that there are positive and economically significant returns to education and training. The study investigates the determinants of training and finds that training participation is positively related to education attainment. However, due to the many differences in the sample and estimation, a comparison between the earlier and later studies is difficult. For example, the study conducted by Chung included more explanatory variables, such as number of wage earners in the household, self-employed, marital status and gender. After 3 decades, Ishak (2003); and Rahmah and Nanthakumar (2007) recomputed the rates of return to education using recent cost and benefit. Ishak (2003) has examined private returns of education investment in public and private higher learning institutions with various education programs in Malaysia and the findings shows private returns from public universities graduates is higher than private universities in each of the programs analyzed in the study.

3. Methodology

This study limited to respondents holding degree of business and management graduated from 1999 to 2005 from Universiti Putra Malaysia (UPM) and The National University of Malaysia (UKM). The reason UPM and UKM selected as target samples are because both universities has developed their alumni database since 1990s and a lot of respondents information can be easily access from this universities alumni division compare to other higher learning institutions in Malaysia. The primary data were collected through surveys and the sampling activity starts with pilot test, followed by sampling with 500 questionnaires distributed to the graduates through alumni divisions of both universities. This study employs the traditional approach to descriptive and practical study with quantitative analyses used to derive the empirical



evidence that would answer the study objectives. To answer the questions, statistical population of this study, first by cluster sampling the universities have been chosen and then samples using systematic sampling. The instrument used in this study is focusing more on education investment costs, education investment funds and earnings-profiles for business and management graduates. The cost of education can be divided to direct and indirect costs. Besides that, the indirect costs must also be included in the form of forgone earnings. If the graduates receive scholarship from public or private funds to cover fees and maintenance costs, the average value of such scholarship must be subtracted from the total estimate of private costs.

The estimation concept of the short-cut model is an augmented from cost and benefit analysis. First the expected gross lifetime earnings of an individual earned up to the time of retirement are calculated. The model then takes into account all direct costs, which include all expenditure that relate to business and management degree program. Meanwhile, there are also indirect costs however to be taken into account, especially in the form of lost earnings or well known as opportunity costs or forgone earnings. This model become popular in early 1980s because in many cases data are not available showing the earnings of workers of different ages and different levels of education that are one of the necessary part for calculating the age-earnings profiles. Therefore, this short-cut method has been an alternative of calculating education return. This model only can be applied no data are available for full calculation of earnings functions, but there are data showing average annual earnings and annual costs of education investments at one point in time of workers with certain level of educations. This method uses average data's on annual earning, forgone earnings and education costs. Given the flat shape of the age-earnings profiles, in this case the rate of return estimation is based on a simple formula as shown in equation (1):

$$\sum_{t=S}^T \bar{C}_{CE} + \bar{W}^{**} (1+r)^{-t} = \sum_{n=1}^n \bar{W}^* - \bar{W}^{**} (1+r)^{-n} \quad (1)$$

Where the costs of education and earnings profile is constant over the retirement time frame for an individual in a labor market. This assumption can be simplified as $\bar{C}_{CE} = \bar{C}_{CE}$, $\bar{W}^{**} = \bar{W}^{**}$ and $\bar{W}^* = \bar{W}^*$. Therefore the relationship between costs of education and benefits can be express as:

$$\sum_{t=S}^T \bar{C}_{CE} + \bar{W}^{**} (1+r)^{-t} = \sum_{n=1}^n \bar{W}^* - \bar{W}^{**} (1+r)^{-n} \quad (2)$$

Similarly, the above expression can be compute to simple equation as shown in equation (3)

$$\bar{C}_{CE} + \bar{W}^{**} \left[\frac{(1+r)^{-S+1} - 1}{r} \right] = \frac{\bar{W}^* - \bar{W}^{**}}{r} \quad (3)$$

By replacing the discounted factor on the left hand side the expression now can be easily determine the internal rate of return on education by using the flat earnings-profiles approach.

$$(1+r)^{-S+1} - 1 = \frac{\bar{W}^* - \bar{W}^{**}}{\bar{C}_{CE} + \bar{W}^{**}} \quad (4)$$

Finally, once simplifies equation (4.9), the rate of return to graduates can be estimated very approximately using the following formula:

$$r = \frac{\bar{W}^* - \bar{W}^{**}}{S \bar{C}_{CE} + \bar{W}^{**}} \quad (5)$$

The variables applied in the equations can be written as;

\bar{C}_{CE} - Average annual direct costs of education investment

\bar{W}^* - Average net annual earnings with degree qualification

\bar{W}^{**} - Average net annual earnings with degree qualification as opportunity cost

S - Duration of higher education studies



- n - Working life of graduates
- r - Internal rate of return
- T - Length of years

4. Findings

In this study we received 280 feedbacks out of 500 survey form distributed to the business alumni's. Figure 2 shows the mean education investment made by graduates is similarly balance with an amount of investment ranging from RM8,000 to RM9,000 annually for the entire 3 years period of business and management course. Besides that, the male and female graduates also displayed the same scenario. In short, although the amounts of total education investment for each of the graduates were not equally balanced, the range of education investment still remains in the same range.

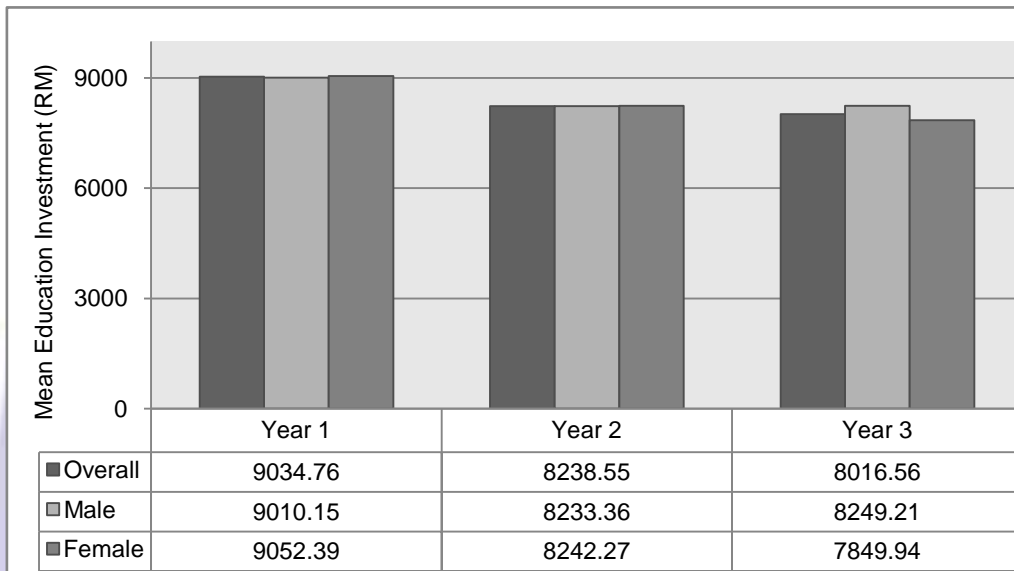


Figure 2: Education Investments for Male-Female Graduates

Once earnings are plotted according to the workers age, the age-earnings profiles will be created separately according to business and management graduates. But, in the case of Malaysia's labor market, the age-earnings profiles data according to level of education is limited. Therefore, some methods of prediction have been used in this research to capture the earnings profiles of the respondents according to genders and employments. The procedure of prediction approaches used in this research have been discussed in previous chapter; and the patterns of the plotted flat and stylized age-earnings profiles are as illustrated in Figure 3.

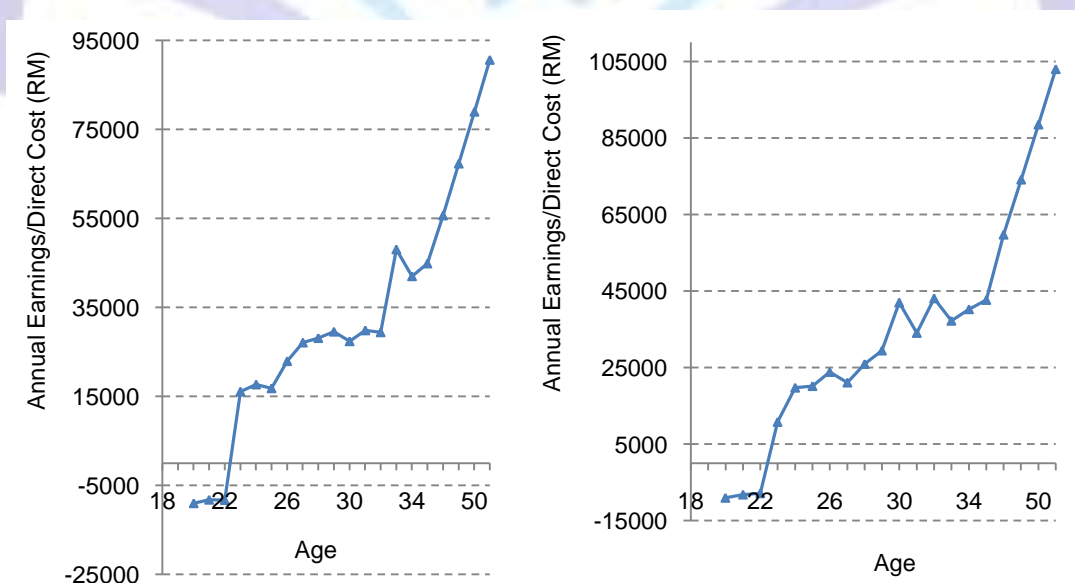


Figure 3: Age-Earnings Profiles of Male-Female Graduates



Two widely used measures for evaluating an investment are the NPV and IRR. It is often assumed that a higher value is better for both NPV and IRR. In particular, it is usually stated that education investments with higher IRR are more profitable than investment with lower IRR. When discussing about educational investment, the NPV represents the sum of the present values of the individual's stream. Each future income amount in the stream is discounted, meaning that it is divided by a number representing the costs of education from now until the age of retirement. Other than that, opportunity costs is also been included as an indirect costs and should be deducted from the cost and benefit calculation (Woodhall, 2004; Psacharopoulos and Patrinos, 2004). Meanwhile, the IRR is defined as discounted rate that makes the NPV of the future monetary flow which includes costs and benefits equals to zero. In Figure 4, positive discount rate indicates the investment has a positive return and is a profitable investment. In the case of this research, the IRR represent the interest rate that equalizes the future flows of additional labor market incomes.

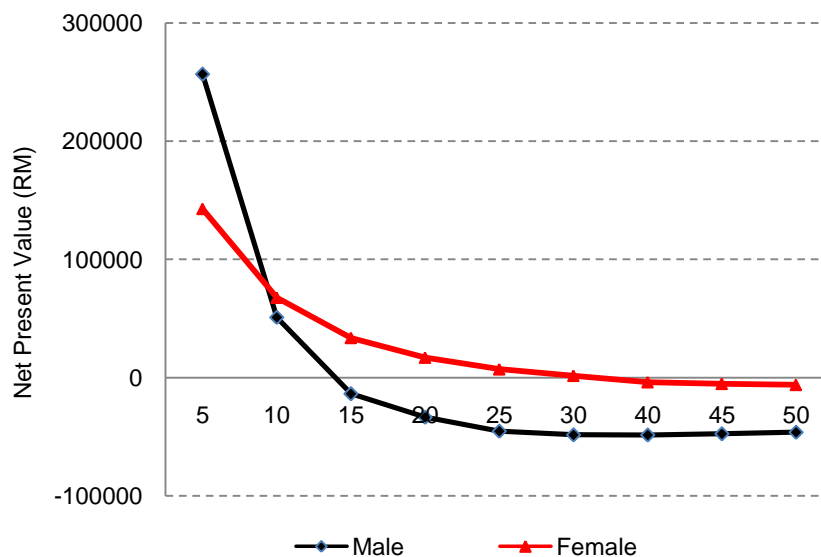


Figure 4: Rate of Returns for Male-Female Graduates

This research as applied to types of cost and benefits on IRR of education investment is called the short-cut method or widely known as average method and the other is the elaborate method. The gender differences affecting returns still remains in elaborate method. As illustrated through Figure 4, male graduates receive 15.8 percent of educational return compared to female graduates which received 28.9 percent. When the IRR and the age-earnings profiles are compared, the findings of this study clearly shows an indirect signal of the difference of monetary earnings received over lifetime in the labor market and IRR received through the cost and benefits of educational investment calculation. Although the graduates have an increasing trend of age-earnings profiles, but there is no high positive correlation with the IRR measurement.

5. Conclusion

This research has demonstrates the internal rate of return for business and management graduates and the results suggest that the business and management programs in Malaysia indicates profitable return with a range of 15-30 percentages. Recently, the number of female graduates from higher learning institutions has been increasing dramatically in Malaysia. Therefore, the number of female workers has also increased in the open labor market and most of the respondent in this study are management and administrative personnel's in public and private sectors. The major finding of this study shows that, female workers earned more than male workers in the Malaysia's open labor market and both of them receive different range of private returns.

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