 J Economics, 3(1): 31-38 (2012)

Earnings Discrimination among Management Graduates: Evidence from Selected Public Universities in Malaysia

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KEYWORDS Age-earnings Profile. Conventional Education (CE). Earnings-Gap. Lifelong Learning. Non-Conventional-Education (NCE)

ABSTRACT The match between age-earnings profiles and earnings differential has been an important agenda in most developing countries in recent times, including Malaysia. Therefore, in this study the researchers analyze age-earnings profiles and apply the interaction term to determine earnings differential among gender for Malaysia's conventional-education (CE) and non-conventional-education (NCE) management graduates. This study employs cross-sectional data with systematic sampling techniques on management graduates; who have been in the labor market for more than 3 years. The results of this study took a different look on gender education issues by considering the match between gender and age-earnings profiles. This study finds the initial earnings gap as a key factor affecting the earnings gap between CE and NCE management graduates. The findings of this study clearly show that, there is earnings discrimination between CE and NCE types of education in Malaysia.

INTRODUCTION

The world is becoming a knowledge-based economy and cultures are increasingly being influenced by modern technologies with sustainable human capital accumulations. For instance, countries with better educated work force tend to have higher income, less poverty and lower rates of population growth than those with less well educated workforce. These are attractive goals for developing countries and in pursuit of such educated and talented workforce, they spend, on average 20% of the national income on education development programs (Becker 1975). The importance of labor market uncertainty for education decision has been widely emphasized in the recent studies. For example, types of education, courses and programs have their own demand in the labor market. The more the demand for any particular type of education, courses or programs may lead to differences in the graduates' age-earnings profiles. Malaysian government however, has placed great emphasis on education, which is the largest item in the federal budget for the past 4 decades; and the current quality of life in Malaysia (2004) also indicates increases in education index. For centuries the population has gained substantial benefit from higher education they have received and has widened such benefit to the society at large.

Besides that, the macro impact of education has also had strong effect on human capital. For example, individuals with better education tend to achieve greater success in the labor market. Thereby, economies with higher enrollment rates and years of schooling appear to be more dynamic, more competitive in global markets, and successful in terms of higher income per capita. Therefore, after independence, the Malaysian education system has changed dramatically; switched from a diverse system of education into an integrated system in respond to national aspirations. The total education expenditure has exhibited an increasing trend over time to develop the education industry in Malaysia, whose take-off period was between the years 1997 and 1998. Comparatively, the education expenditure was within the range of 15% to 30% of the total government expenditure in the beginning of 1990s. The rest of this paper is organized as follows: Section 2 presents a brief review of the lifelong learning and earnings-profiles in Malaysia, while section 3 explores the significance of some of the previous studies. Section 4 describes the methodology used; sec-

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tion 5 discusses the results. The concluding remark is in section 6 and finally the recommendations.

Overview of Life-long Learning and Earnings Profiles in Malaysia

Malaysia's tertiary education system can be divided into 2 categories, namely, conventional-education (CE) and non-conventional-education (NCE). CE refers to formal full-time graduate programs, while NCE refers to part-time degree programs, like executive programs and distance learning graduate programs, involving those who are already in the labor market (that is, those who are working). Apparently, most employers in Malaysia prefer workers who are continuously acquiring and upgrading their learning skills throughout their career period. The debate on the concept of lifelong learning has moved from one that focuses on employability and economic concerns to a broader definition which 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. Organization for Co-Operation and Development (2001) has defined lifelong learning as all purposeful learning activity from the cradle to the grave, that aims at improving knowledge and competencies for all individuals who wish to participate in learning activities.

Referring to the concept of lifelong learning to include all learning activities which include formal, non-formal and informal learning activities, it is largely the formal learning that can be described as the core of lifelong learning programs and activities in the Malaysian context. Traditionally and until the present time, the public sector has been the major provider for such education, training and human resource development. The concept of lifelong learning in Malaysia is clearly linked to productivity and employability as has been expressed in Malaysia's Third Outline Perspective Plan. The plan stressed on lifelong learning to become increasingly important for the future of the knowledge-based economy where knowledge and skills need to be continuously updated and upgraded. To increase accessibility and to improve the participation rate, government has provided alternative pathways in the lifelong learning perspective at tertiary level and higher education sector by establishing technical university colleges; distance education through "Open University" concept; modular certification of courses, and develop credit transfer systems from polytechnics and community colleges for further pursuant of university education.

The substantial widening of access to tertiary education combined with two other factors impels the expansion of the higher education system. Firstly, a rapid increase in the number of people beyond traditional ages attending higher educational institution, mostly in the NCE system. Secondly, a higher proportion of secondary school graduates progress to higher education. Malaysia's demographic change, income growth, urbanization, and the growing economic importance of knowledge and skills have combined effects to ensure that as in most developing countries, higher education is no longer a small cultural enterprise for the elites. Although higher education enrollment in Malaysia has risen sharply between 1980 and 2007 like in most industrial and developing countries, but the enrollment rate in some industrial countries has remained roughly between 5 to 6 times than those of the developing countries. Figure 1 shows the percentage share of enrollment in private higher education in some selected countries. The exact scale of expansion of the private educational institution is difficult to determine, but the number of private institutions increased dramatically in many parts of Asia and Africa, from the years 1980s onwards. For example, China has more than 800 private higher educational institutions and in Brazil, 60% of tertiary level students' enrollments are in private institutions, which comprise of nearly 80% of the country's higher education system. Upon independence in 1945, Indonesia had only 1,000 tertiary level students' enrolment. Currently the country has more than 50 public universities, with another 60% of the students enrolled into private institutions. Meanwhile, in South Africa, roughly half of the country's student's populations are enrolled into private institutions (World Bank 2010).

As noted earlier, individual earnings will increase once a worker has additional education, trainings and working experience. In the case of Malaysia, the public servant average annual earnings growth is based on years of services and job performances. Annual increment for government employees with a first degree

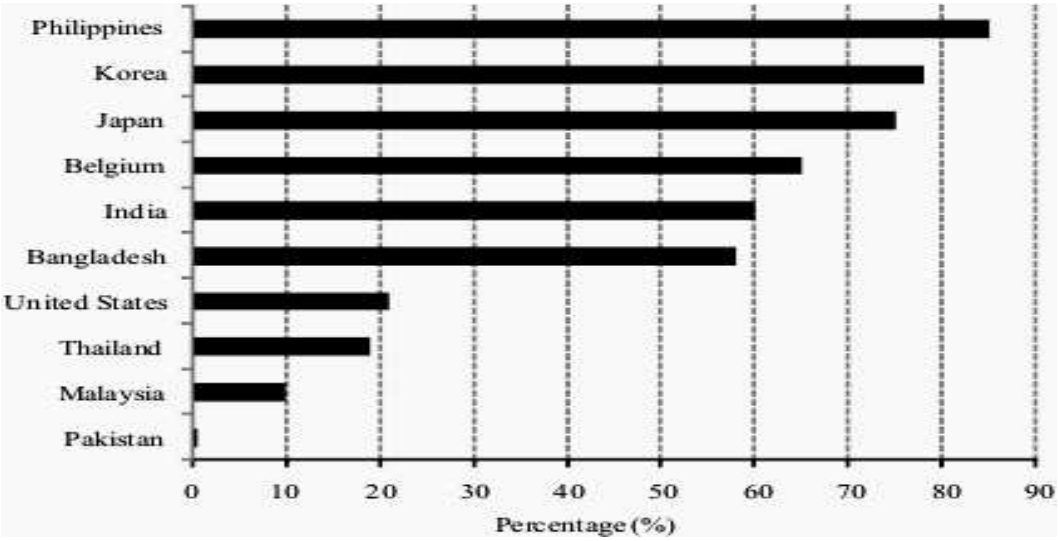

Fig. 1. Percentage share of enrollment in private higher education from selected countries
Source: World Bank 2010

qualification (N41) is on an average range of RM100 to RM120 annually; and for those with diploma education background (N27) is on the average range of RM80 to RM100 annually. Figure 2 indicates the monthly earnings scale for public servant with management and administrative position. It might be interesting to include the earnings-profiles for private sector workers in Malaysia. Malaysian Employers Federation (MEF) is a government authorized body involve in conducting salary surveys on private companies from manufacturing and non-manufacturing sectors. The latest report of Salary and Fringe Benefits Survey for Executives conducted by MEF indicates that average basic salary and salary increase are different according to sectors, location, employment size and source of capital ownership.

In Malaysia, the issues related to the earnings of the fresh graduates have often been raised and according to MEF reports, in 2007, there was an increase in the average minimum monthly basic salary for all executives recruited without prior working experience from diploma level up to master's degree. For newly recruited executives, without prior experience with a ba-

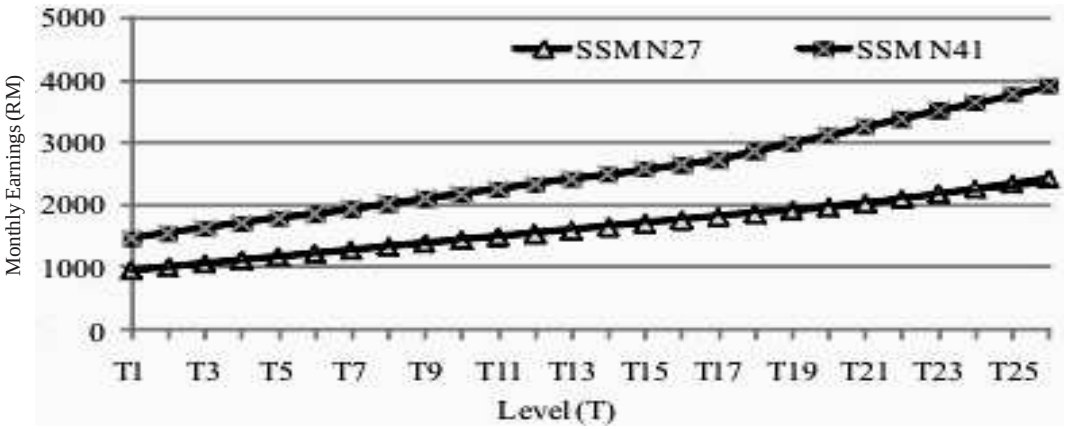

Fig. 2. Monthly earnings scale for public servant in management and administrative position
Source: Public Service Department of Malaysia 2010

sic degree or basic degree with honours, there was an increase of approximately 6% of the average minimum monthly basic salary. Compared with public sector employees, private sector employees in Malaysia receive higher annual salary increment. For instance, executives in private sector earn on average 6.2% annual salary increment in 2006; but the percentage of increment decrease to 5.9% in 2007. Although we found that there is salary gap between manufacturing and non-manufacturing workers in private sectors, but the gap is not very large. Table 1 illustrates clearly the average basic salary, gross salary and salary increase for executives for the years 2006 and 2007.

In Malaysia the concept of over-education has not been clearly explained in many comprehensive studies over the revision of the salary scales. Graduates who are not receiving minimum salary related to their education and qualification levels can be classified as over-educated labor force in the labor market. Therefore, average basic salary for executives in private and public sectors had not been clearly identified. The public sector workers earnings is normally based on work experience; while in private sector it is usually based on individual performance. The figures shown in this study indicates that earnings in the Malaysian labor market are closely related to the workers' level of education. There is a large disparity in earnings between workers with different levels of education, either in public or private sectors. Particularly, there is a noticeable wage gap between workers with CE and NCE tertiary management education. This is mainly caused by location, genders, type of industries and workers experience. Henceforth, to have additional education may be one of the right choices for workers to increase their human capital; especially through additional education attainment or trainings. In some circumstances, earnings discrimination may occur when the marketplace offers different opportunities to similar individuals but differ by race, ethnic group, sex, age, type of education received and personal characteristics.

Significance of Previous Studies

The concept of human capital was introduced by Schultz (1963), who described that human capacities is developed through education that can be used productively by taking into consideration capacity to deal in abstractions, to recognize and adhere to rules, and to use language at a higher level. Like other forms of capital, human capital also has been accumulated over generations. Becker (1975) has adapted the human capital concept to describe investments made by firms to maximize workers' productivity through on-the-job training. Recently, the term has been broadened to include all knowledge and skills, both formal and informal, that workers acquire through education, training and experience (Mankiw 1998). Classical studies on earnings affirm that, among factors that influence individual labor income are variables such as sex, ethnicity and civil status. Those variables, however, should not have impact on human capital, but just defining it as a collection of abilities and results of investments in personal productivity.

If the relationship between these demographic factors and human capital is detected, their influence could be attributed to the social structure. Although many literatures are devoted in understanding the earnings increase over the lifecycle, the dominant explanation for an upward sloping earnings profile remain as the general human capital model. Individuals, who in-

Table 1: Average basic salary, gross salary and salary increase for executives, 2006-2007

Categories of executives	*2006*			*2007*		
	Average monthly salary	*Average gross monthly salary*	*Average salary increase (%)*	*Average basic monthly salary*	*Average gross monthly salary*	*Average salary increase (%)*
Top executives	17,845	18,775	6.7	16,586	17,411	5.9
Senior managers	10,803	11,341	6.9	10,142	10,834	6.3
Managers	6,915	7,302	6.1	6,542	6,963	5.6
Assistant managers	4,710	4,919	6.2	4,530	4,761	5.9
Senior executives	3,732	3,902	6.2	3,626	3,822	6.1
Executives	2,743	2,889	6.2	2,699	2,861	5.9

Source: Salary and Fringe Benefits Survey for Private Sector Executives 2008

vested in worker-financed general human capital, initially will lower the earnings, but subsequently will increase his productivity and earnings. The shape of the earning-experience profile reflects the intensity and time pattern of training investments, coupled with the rate of returns from these investments (Loury 1997; Toikka and Neveu 2004; Sohnesen and Blom 2005). Bjorklund and Kjellstrom (2002) have examined how well the schooling coefficients in standard Mincerian equations in the case of Sweden. They used Swedish data for 1968, 1981 and 1991, and approximated the marginal internal rate of returns to education. From the study, three cases were inferred from the estimated schooling coefficients. Decline in returns in schooling from 1968 to 1981 is mainly concentrated on college education, whereas the returns to high school education are stable. Secondly, the rate of returns is sensitive to the assumption made about the length of working life, or the retirement decision. Both, schooling coefficients and the internal rate of returns give misleading information about the value of adult education. By comparing the present value of lifetime earnings between youth and adult education, the findings of the study shows huge differences in favor of youth education, even though the schooling coefficients and the internal rate of returns were the same. Education can actually influence the income distribution in an economy and the ways in which it effects the distribution are varied (Tilak 1989). While, Psacharopoulos and Woodhall (1985) and Myatt and Murell (1990) summarized that, education may raise the overall level of income and thus reduce the absolute level of poverty; and which may eventually change the dispersion of income.

Analysis of different groups of individuals that are segmented into different labor markets is related to the work done by Bowlus and Eckstein (2002). Within a simple Burdett-Mortensen setting, this study analyzed discrimination and skill differences by allowing for different productivity and different transition parameters across races as well as incorporating employer's discrimination. Multilevel methodologists have earlier argued that in a hierarchical structure the classical ordinary least square estimates are not reliable for hypothesis testing (Naderi and Mace 1988). Using the data from manufacturing sector of Iran, this study examined empirically the existence of hierarchical structure and the multilevel analysis, showing that the data are dominated by hierarchical structure; and ignoring the effects of this structure on the estimates can be misleading in testing of hypotheses. Katz (1997) has studied gender and earnings discrimination in one of the industrial town in Russia, using survey data and the earnings function estimated from pooled sample. The study explains a large share of gender earnings gap caused earnings discrimination within the sample used in this study.

In the case of Malaysia several studies related to earnings discrimination has been conducted and all of the findings indicates that there exist earnings discrimination in Malaysia's labor market (Chapman and Harding 1985; Blau 1986; Vijverberg 1987; Demery and Chesher 1993; Schafgans 1998; Rahmah and Zulridah 2005). Some of the studies have concluded that sex, race and type of employment are some of the major factors for earnings discrimination. Therefore, in this study we undertake the comprehensive assessment of the previous studies and establish a modified classical Mincerian earnings function to evaluate the earnings differential by sex and types of management degrees received by the employees in the Malaysian labor market.

METHODOLOGY

The cross-sectional data used in this study mainly obtained from the alumni division database of University Putra Malaysia (UPM) and National University of Malaysia (UKM). The focus group is the business and management fulltime graduates, graduated during the period of 1996 to 2005. Data of the individual graduates were collected using a systematic sampling technique using comprehensive survey form. The key questions addressed in the survey are based on the age and earnings profiles; and working experience of the target respondents. Although simple random sampling is common in many previous studies, but the sample selection method has to be very selective. Hence, we use systematic sampling technique because of its simplicity. Perhaps, systematic sampling also spread more uniformly over the entire population and thus, may provide more information about the population than an equivalent amount of data contained in a simple random sampling.

Although there may be a selectivity bias, or sample selection bias when non-randomly

sample selection arise, but it is not the attempt of this study to correct the sample selection biasness using two-stage estimation procedure because the target sample has been earlier identified from the alumni database. In order to get good results, the choice of the model is dependent mainly on the questions which enable to supply answers. This study applies the basic Mincerian earnings function to estimate earnings gap between male and female management graduates with Bachelor Degree in Business Administration. The concept of an earnings function used by Mincer (1974) is to explain the pattern of individual earnings in United States. Mincer used an earnings function to analyze the relationship between normal education (SCH), experience (EXP) and earnings (W) of male workers in the United States. The basic earnings function can be written as follows:

$$W = f(SCH, EXP, EXP^2) \quad \ldots\ldots (1)$$

The empirical model function specified above is estimated using ordinary least square method, but this study does not include schooling as one of the endogenous variable because of the homogenous length of education attainment received by respondents. Therefore, the regression method is split into 2 types of models; model I indicates the classical Mincerian earning function; while model II has an additional variable to analyze the interaction effects of gender and working experience. In addition, all variables except the dummy variable in this study have been transformed into logarithm. The framework of model I is as shown in equation (2):

$$W = \beta_0 + \beta_1 AGE + \beta_2 EXP + \beta_3 EXP^2 + \beta_4 W^* + \beta_5 DUM1 + \varepsilon \quad \ldots\ldots (2)$$

Where, W is net yearly earnings, AGE is current respondents age, EXP is years of working experience, EXP^2 is years of working experience squared, W^* is initial earnings, and DUM1 is set of CE and NCE dummies. Coefficients in the equation above are estimated using Ordinary Least Square (OLS) method, and the function for male and female are estimated using single regression model as shown in equation (3). For simplicity, the model specification for CE and NCE is illustrated as

$$W_{CE} = (\beta_0 + \beta 5) + \beta_{1AGE} + \beta_2 EXP + \beta_3 EXP2 + \beta_4 W^* + \varepsilon$$
$$W_{NCE} = \beta_0 + \beta_1 AGE + \beta_2 EXP + \beta_3 EXP^2 + \beta_4 W^* + \varepsilon \quad \ldots\ldots (3)$$

Dummy variables have been employed frequently in the research strategy to capture the influence of categorical variables. Therefore, the second model in this study includes gender as a dummy variable to show gender and earnings differential among the CE and NCE graduates. Model II is as follows; and the dummy for gender identification are DUM1 and DUM2:

$$W = \beta_0 + \beta_1 AGE + \beta_2 EXP + \beta_3 EXP^2 + \beta_3 EXP^2 + \beta_4 W^* + \beta_5 DUM1 + \beta_6 DUM2 + \varepsilon \quad \ldots\ldots (4)$$

Model III includes the interaction term for the type of education and gender. The interaction term will adjust the slope of the Mincerian regression equation in order to show the relationship between the dummy variables. The following model is used to estimate the effects of interaction terms in this study:

$$W = \beta_0 + \beta_1 AGE + \beta_2 EXP + \beta_3 EXP^2 + \beta_4 W^* + \beta_5 DUM1 + \beta_6 DUM2 + \beta_7 (DUM1*DUM2) + \varepsilon \quad \ldots\ldots (5)$$

RESULTS AND DISCUSSION

The results from the ordinary least square regression for model I, II and III and summary statistics are presented in Table 2. In this study, the researchers used education as a dummy coefficient to estimate the difference in earnings between CE and NCE graduates in the Malaysian open labor market. In Model I, the value of DUM1 coefficient is 0.81 with 1% level of significance. This suggests that the CE graduates on the average earn more than the NCE graduates in the open labor market, showing a strong evidence of earnings discrimination. Meanwhile, Model II also indicates the same scenario as in model I, where the female employees earn 2% more earnings than the male. Hence, Ho is rejected. Model III which has additional interaction terms of gender and types of tertiary education received, also clearly shows rejection of Ho with 1% significant level. This indicates that the female CE graduates received 5% higher earnings from the male NCE graduates.

All of the constant coefficient values show that the intercept effects appeared throughout this study. That is, the values of the intercept changes once an interaction terms are included in the regression models. To further confirm the findings in model III, Wald test is carried out to test the equivalence of two regression models in the presence of dummy variables. In order to test whether there is a type of education discrimination in term of earnings, we set up the null hypotheses as $H_0: \beta_6 = \beta_7 = 0$. The Wald test results show that the F-value is equal to 1% of significant level and the hypothesis is rejected. This shows that there is sufficient evidence to suggest that the salary earned by the CE and

Table 2: Ordinary least square regression results (Sample size=215)

Variables	*Model I*		*Model II*		*Model III*	
	Coefficient	*S.E*	*Coefficient*	*S.E*	*Coefficient*	*S.E*
Constant	-0.38	0.13	-0.40	0.13	-0.40	0.13
	[-2.83]*		[-3.03]*		[-3.07]*	
Age	0.34	0.09	0.33	0.08	0.35	0.08
	[3.76]*		[3.77]*		[3.96]*	
Years of working experience	-0.01	0.03	-0.01	0.03	-0.01	0.03
	[-0.49]		[-0.35]		[-0.57]	
[Years of working experience]^2	0.09	0.01	0.09	0.01	0.09	0.01
	[5.10]*		[5.08]*		[5.39]*	
Initial earning	0.78	0.04	0.80	0.04	0.81	0.04
	[16.02]*		[16.38]*		[16.83]*	
Types of education	0.81	0.19	0.77	0.19	0.69	0.19
[CE=1, NCE=0]	[4.24]*		[4.04]*		[3.61]*	
Gender			0.02	0.01	0.01	0.01
[Female=1, Male=0]			[2.30]**		[-0.47]	
Interaction term I					0.05	0.02
[Educ x Gender]					[-3.07]*	
Adjusted R^2	0.78		0.77		0.77	
Prob>F	0.00		0.00		0.00	

Note: Each coefficient estimate comes from separate regression and figures in [ ] stands for t-value. βeta values refer to coefficient vales and S.E refers to standard error values. Asterisks (*) and (**) denote two tailed significance level at $p<0.01$ and $p<0.05$.

NCE graduates in the Malaysian labor market is statistically different. Besides that, the initial earnings for the entire regression models are also significant and these results show that there is a difference in terms of initial earnings received by the CE and NCE management graduates. Surprisingly, the experience term is statistically insignificant across the three models, denying the standard concave relationship between experience and earnings. On the other hand, an initial earnings received by the respondents of this study has its importance as it reflects the earnings gaps between the CE and NCE graduates. Indeed, this is part of the factor causing earning gaps in the Malaysian workforce. Age and squared value of years of working experience of the respondents also have significant indication, showing the discrimination of the CE and NCE earnings gap.

RECOMMENDATIONS

(a) Malaysian government should take an important role in revising the initial earnings status for the management graduates with degree qualification in both public and private sectors. This can be made by introducing 'minimum wage consideration' for all the employees in Malaysia.

(b) Public and private sector employers should not discriminate their employees based on gender and type of education received. Employers should also consider their employee's ability and performance before deciding on the salary paid.

(c) Employers should consider the experience of the NCE graduates because they can be categorized as 'experience based employees' and degree qualification that they receive should be considered as a 'plus point' for them to receive higher pay, compare with the CE graduates which can be categorized as 'fresh workers' in the market. Although the CE graduates have their degree qualifications, but in terms of experience, the NCE graduates should be given priority because of their working experience.

CONCLUSION

Compared to previous studies around the globe, this study has its own strength and contribution in highlighting the earnings discrimination among the Malaysian management graduates. The major findings of this study show that there exists discrimination between the CE and the NCE graduates in the Malaysian open labor market. The interaction terms together with the gender earning gaps also show similar implications. Thus, our results suggest that initial earnings are the key determinants of the

earnings gap for both types of graduates. As a conclusion, the researchers suggest that workers with more 'human capital development' should get paid more than those with less 'human capital development'. Since the Malaysian labor market has reformed, technological progress has increased the need for skilled and experienced workers and the need for unskilled workers or those who are less experienced is gradually reducing. In addition, the findings of this study has also provided an interesting issue direction where further research, especially estimation on educational return among CE and NCE graduates using Cost and Benefit Analysis (CBA) should be done, for further insight into the Malaysian labor market.

ACKNOWLEDGEMENTS

We would like to thank Universiti Putra Malaysia (UPM) and National University of Malaysia (UKM) alumni division for providing data and Universiti Malaysia Terengganu (UMT) for providing research fund and financial support to complete this study successful.

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