# Estimating the Returns of Self-employed and Salaried Workers in MALAYSIA

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**Abstract**

Evidence from the literature suggested that there is a positive relationship between education and earning. However, to what extent the returns differ according to the choice of individual's economics activity remain debatable particularly in developing countries? For various reasons, some would prefer to work independently, but others like to join a formal sector and received earnings frequently. Education returns of wage earners and self-employed workers are the main objective of this study. The method of this study is using Ordinary Least Square estimation on wage equation. Using males sample of a cross sectional data from 2002 to 2004, we found a trend of occupational choice and level of education for the formal sector is positive relatively. This paper argues that self-employed workers always obtained higher returns to education than their wage-earning counterpart. The data suggested that for those who obtained a higher credentials are more likely to involve in wage salaries rather than self-employed. A further research need to carry out to support a notation that self-employed is enjoying a higher return.

**Keywords** *Economics of education, human capital, rate of return, wage earners, labour economics*

## INTRODUCTION

The basic principle in mainstream human capital theory is to measure the quality of human capital through educational achievement, such as years of schooling. It is generally assumed that more years in schooling improve the quality of human capital. Thus it is assumed by policy makers that an increased level of education will impact directly on labour market productivity. Concomitantly, policy makers argue that

increasing the level of schooling will give an impact on wages. No doubt that the policy makers did provide a lot of support and opportunities for those who are less in human capital. However, to be involved in any economic activity or occupation is an individual choice. The motivation for choosing self-employment or salaried/wage workers after completing certain level of education are dominated by many factors. The reasons for being self-employment might be motivated by family background (Hout and Rosen, 2000; Blancflower, 2004) and the expected income differential between self-employment and employment for a given individual (Lee, 1999; Parker, 2004). The discussion on occupational choices can be found in many paper including Borjas and Bronars (1989), Pickles and O'Farrell (1987), Blanchflower and Oswald (1990, 1998a), Blanchflower and Freeman (1994), Meager (1992), Taylor (1996), Blanchflower (2004) and Constant and Shachmurove (2005). However, a major concern of this paper, i.e. to assess the impact of investment in education on individuals that involved in economic activity as self-employed (SE) and salaried workers (SW).

A recent important strand in human capital literature is concerned with the role of education in emerging economies. However, a study in this area is not as well established as in developed economies. Malaysia, as one of the High-Performing Asian Economies over the past three decades, has experienced a steady growth with continuous improvement in the education system and training. Data and information collected on Malaysian education and earnings serve to provide an important indicator of the benefits from investment in education for this important economy. Previous data and analysis on returns were hampered by relatively few observations and other data inadequacies (Ismail, 2012). Hoerr (1977) utilized official data of "Malaysian Socio-Economic Sample Survey of Households, 1967-68". However, his study covered only a relatively small sample of 800. Nevertheless, it was an important benchmark in investigating the returns to education in Malaysia. The findings showed that the cumulative private rate of return to education was higher for upper secondary education. Lee (1980) and Mazumdar (1981) concluded that the earnings variation in human capital theory is largely explained by education. Unfortunately, these studies did not represent the Malaysian population as a whole but might be true for the return for their samples, which covered less than a thousand respondents.

Blau (1986), Rahmah and Rogayah (2003) and Chung (2003; 2004) estimated the rate of return to education in Malaysia. However, the results of their studies were inconsistent, probably because their objectives and methods were different. Chung (2003) found that the marginal gross return was higher at the upper secondary to pre-university level where an individual has an annual gross return of 22.9 percent. This result is consistent with the previous findings but contrasts with the study carried out by Hoerr. However, due to the many differences in the sample and estimation, a comparison between the earlier and later studies is difficult. Nevertheless, these studies that estimate the returns to education have made a great contribution to the literature relevant to Malaysia. This paper, however, we focus on the different between WS and SE workers which was not covered by the previous studies.

## HUMAN CAPITAL DEVELOPMENT

Human capital formation in Malaysia developed significantly by schooling attainment. Basically, education system consists of pre-school, primary school, secondary school and higher learning institutions. Primary education starts at seven and continuous for six years. Over the six years of primary education, students are assessed by continuous school-based assessment until, at the end of Year Six; they experience the first National Examination known as the Primary School Achievement Test (PSAT) to evaluate their performance. All students are automatically promoted to secondary school after completion of six years in primary school. The normal duration of secondary schooling is five years but it is divided into two levels, i.e. lower and upper secondary. Students in the government schools must sit for two national examinations at the end of each level; namely Lower Secondary Examination (LCE) at the end of level one, and Malaysian Certificate of Education (MCE) after finishing level two. Meanwhile, the Upper Secondary Education offers choices to students to fulfil their needs, skills and interests in career development. Post-secondary education offers school leavers or students the opportunity to continue their studies after completing five years of secondary education. It takes two years to complete the post-secondary education either in the science or the arts stream before the student can sit for the Higher School Certificate (HCE). Further education, i.e. the university level, numerous of courses offered which is length of study between 4 to 6 years to complete. In a regular path of education, the students will complete their education from primary up to higher education in 17 years. To sum up, an investment in education whether in term of the development of facilities/ infrastructures or human capital progress are well developed since independent five decades ago have been given a significant impact to the people.

In human capital theory, two stream of research have been found to justify the impact of earnings on education. First, Becker (1993) argues that education and experience enhances natural abilities that are afterward sold in the labour market. Secondly, sorting model also predict higher earnings, since greater human capital is acquired in order to signal for higher productivity (Spencer, 1973). The former, indicates that education is seen as an investment in oneself during his/her schooling and experience was made later through on-job-training. Whether their occupational choices have been made as self-employed or salaried workers, would be rewarded for achieving more education. In the labour market, they may receive different returns to education due to some reasons. For instance, for SE workers, the returns not depends only on a formal education, but rather to the some other significance abilities, motivations or family heritage. In contrast, for the case of SW workers, return to education based on their productivity that may be required by their employer. Thus, estimates of the returns to education should be higher and education credentials tend to be a signal of productivity. Therefore, higher education leads to higher earnings because some people have been able to show their productivity by level of education that they are obtained. In case of SE workers, the signalling role is less evident to prove because no employer exists. The point is, without comprehensive information about a labour market, it is difficult to say whether returns to education for SE workers will be higher or lower than WE workers, especially in developing countries. Furthermore, lack of data about the workers characteristics which are influenced the schooling choice direct

and indirectly has been made the bias in estimation. Many studies using cross-sectional data on schooling and earnings tend to show that SW workers enjoy higher returns than SE counterpart (for example Hamilton, 2000; García-Mainar and Montuenga-Gómez, 2004; Constant and Shachmurove, 2005; Lofstrom, 2009; Tokila & Tervo, 2011), although the opposite also has been reported (Evan and Leighton, 1990; Alba-Ramirez and Sansegundo, 1995; van der Sluis et al., 2004; Kamga, Kamga & Audibert, 2013). Therefore, by using data of schooling and earnings this study examines the returns to education for SE and SW workers in Malaysia.

## METHODS

The empirical analysis of this study uses a human capital earnings function to estimate the private rate of return to SE and SW workers in Malaysia. The empirical model used in this study is the Mincerian earnings function. The specification is:

$$\ln W_i = \alpha + \beta_1 S_i + \lambda_1 Exp_i + \lambda_2 Exp_i^2 + \theta X_i + \varepsilon_i \qquad (1)$$

Whereas, $W_i$ is log earnings, $S_i$ is years of schooling, $Exp_i$ is the potential experience of individual $i$. Due to the absence of complete data on experience, Mincer (1974) proposed the alternative of "potential experience", i.e. the number of years individual A could have worked after completing schooling. Assuming that he/she starts schooling at 7 years old (refer to a local regular school) and begins working immediately after $S_i$ years of schooling, $Exp_i$ is equal to A–S–7 (Age – Years of Schooling – 7). The term of the equation, $Exp_i^2$ represents experience squared to capture a concavity of the observed earnings profile. Meanwhile, the parameters of $X_i$ contain a set of dummy variables indicating marital status, sector of activity (SE and WE workers), zone of residency and location. Applying simple Ordinary Least Squares (OLS) to the above equation, one can estimate the coefficient $\beta_1$ as the average of the private rate of return to schooling. The estimation of the parameters $\lambda_1$ and $\lambda_2$ are generally positive and negative respectively. Mincer (1974) claimed that weekly earnings were preferred as a dependent variable in the model. However, in the literature on the human capital earnings function, a variety of earning measurements have been used to estimate the rate of return. For example, the alternatives of annual or monthly earnings have been used as the dependant variable, depending on data availability. Consistently, the earnings variable in equation (1) makes use of the logarithmic form because the distribution of log earnings is very close to a normal distribution, especially log hourly wages (Card, 1999). In addition, it is preferable to use the log transformation based on the success of the standard (semi-logarithm) human capital earnings function (Willis, 1986).

Despite the popularity of using OLS with the Mincerian earnings function, its use raises a number of issues regarding the robustness of estimation. OLS regression of log earnings on schooling will produce a bias in estimation on $\beta_1$ because of the correlation

between schooling and other variables. Moreover, schooling may be endogenous as a result of the individual's optimal schooling choice. Consequently, OLS estimates will be biased upward. Ultimately, ability bias is due to the unobservable factor that is correlated with both schooling and wages, also leading to estimation bias. Especially, if ability is believed to be associated with both wages and schooling (Ashenfelter at el., 1999), estimates of the return to schooling will tend to be biased upwards (Card, 2001). However, most of the cases of omitted ability are biased by not more than 5-15 percent (Schultz, 1988). Furthermore, a potential bias is associated also with the measurement error. This bias, associated with schooling measurement, age and experience, is misreported in the data. In case of Malaysian data, latest studied by Ismail and Awang (2012) using school reformed as the instrument has found that the different between OLS and IV (instrumental variable) estimation not more than 1 percentage point (see also, Ismail & Bell, 2008). In this paper, thus, a robust estimation is deployed and sample is restricted to male only in order to reduce a selection bias.

Given the earnings, experience and educational attainment structures as well as group of workers, our strategy of estimation can be described as follows. Firstly, Mincer's equation is typically estimated for the whole sample with given characteristics. As a consequence, it can justify the wage different between SE and SW workers. In this study, we do not correct explicitly the selection bias; however the estimation of male samples only will contribute to reduce this bias. Moreover, we have included a set of regressors in the Mincer's equation in order to control for several factors that might influence the occupational choices and a robust estimation is employ. Secondly, we estimate the returns to education for the SE and SW workers separately. Finally, we estimate the returns for each level of education which is SW workers as a baseline.

This study uses data from the household income survey for the years 2002 and 2004. The male sample of 11,759 and 11,791 observations have been withdrawn from the surveys in year 2002 and 2004 respectively. From these observations, approximately 30 percent are the self-employment workers and 70 percent as salaried workers for both years. Our data showed that most of the salaried workers (SW) are located in urban areas; it is about 66 percent and 67 percent in 2002 and 2004, correspondingly. However, for those who are self-employment (SE), 55 percent are settling in the rural areas in 2002 and 62 percent in 2004 whereby the economic activities are considered relatively less productive.

The mean income in 2002 was MYR2026.15 and increased to MYR2120.45 in 2004. As compared between SE and SW workers, mean of monthly income for the former was MYR1821.49 and the latter was MYR2114.07 in 2002 and 2004 respectively. The earnings for those who were employed were 16.06 percent higher than those who self-employed or employers in 2002. The earnings gap between these two groups, however, declined in 2004. Employees received only 7.69 percent higher than self-employed in 2004. In absolute figures, they earned about MYR2013.26 and MYR2168.06 (in current price) in 2002 and 2004 respectively. The earnings gap between employees and the self-employed decreased during this period. As regards earnings, SE workers earn less than SW workers. Furthermore, their earnings dispersion to be higher compare to SW workers. This is due the fact that SE workers are heterogeneous group, which is including a wide range from low-skilled activities to very successful economics activities.

**Table 1** Descriptive Statistics

| Items | 2002 | | 2004 | |
|---|---|---|---|---|
| | SE | SW | SE | SW |
| Monthly Income (MYR) | 1821.49 (2237.47) | 2114.07 (1902.62) | 2013.26 (2565.64) | 2168.06 (1966.32) |
| Log wages | 7.17 (0.753) | 7.43 (0.628) | 7.25 (0.773) | 9.78 (3.626) |
| Schooling | 7.48 (3.352) | 9.76 (3.356) | 7.62 (3.688) | 9.78 (3.488) |
| Certificate* | 1.66 (1.069) | 2.41 (1.214) | 1.76 (1.124) | 2.47 (1.201) |
| Age | 45.19 (9.605) | 38.25 (9.116) | 45.15 (9.605) | 39.06 (9.280) |
| Experience | 30.71 (11.454) | 21.49 (10.411) | 30.52 (11.599) | 22.28 (10.594) |

Note: * Certificate is using dummy variable, 1- no certificate, 2- secondary school, 3 – upper secondary, 4 – pre-university and 5 – university level.

The means for schooling, certificate obtained, age and experience increased slightly during years 2002 to 2004 (Table 1). Age and experience have been increased by two years during this period. With respect to education, comparisons between groups reveal a huge difference in the levels of education, with persons as SW more likely to be better educated than those as SE workers. For example, in 2004, the mean of schooling for SW was 9.78 years but for the SE workers only 7.64 years. The mean certificate obtained was different between these two groups by almost 1 point. Looking at the structure of education, the gap of the mean educational attainment between SW and SE samples is very noticeable. For instance, 52.16 percent of SE workers were attained primary education or less in 2004. Meanwhile, only 26.67 percent of SW workers obtained the same educational level. For the secondary education, 41.94 percent completed this level compare to 57.00 for SW workers counterpart. SE workers who completed tertiary education were 5.9 percent and 16.33 percent for SW workers. All this suggests that most of the SE workers in these samples suffer from low levels of education relatively. In other words, educated workers prefer to be salaried. With respect to age and experience, the mean age for SW was 7 years less than the self-employed (45.19 years for SE and 38.25 for SW). The same trend was found for year 2004. In terms of experience, the mean for the SE in 2002 was 30.71 years but only 21.49 years for SW workers. Interestingly, the samples have shown an enormous difference between the means of age and experience between the SW and SE workers, where SW were younger than the self-employed. Moreover, the mean of experience for the SE workers was 8 years greater than for employees not only for year 2002, but it also for 2004.

## RESULTS

The empirical results were derived from the estimation using equation 1 as presented by Table 2. Column 2 and 3, reported the OLS estimates for year 2002 and 2004, respectively. It estimated the Mincerian earnings equations where the natural log of monthly earnings received by an individual is a function of years of schooling, potential experience and its square, while the control variables used dummies for marital status, household heads' occupational choices – SE and SW, and location (zone of residential). The average private rate of return for an additional year of schooling was 10.46 percent in year 2002 and 10.02 percent in 2004. One additional year of experience increased earnings by 4 percent in 2002 and 3 percent in 2004. All parameters are significant at 0.05 levels or better in all years. The results show the Malaysian data are consistent with the basic human capital model that is in line with the basic theory. Schooling and experience are positively correlated with earnings but experience squared is negatively correlated.

The average return to education based on a homogenous return model (OLS) for Malaysia is consistent with the average return for middle-income countries, which is 10.7 percent (Psacharopoulos & Patrinos, 2002) and slightly higher than the Asian average. The private rate of return for Asia as a whole in 2004 was 9.9 percent (Psacharopoulos & Patrinos, 2004). Nevertheless, it is low compared to the Asian Tigers. For example, the average return in Singapore was about 13 percent (Psacharopoulos, 1994; Sakellariou, 2003); the Republic of Korea from 12 to 13.5 percent (Ryoo et al., 1993). But in Thailand, which is similar in terms of economic development, the private return almost equals the return for Malaysia which was estimated at between 10.3 and 10.7 percent (Hawley, 2004).

**Table 2** Returns to Education for Self-employed and Salaried Workers

| Variables | Overall | | Self-employed workers | | Wage/salaried workers | |
|---|---|---|---|---|---|---|
| | 2002 | 2004 | 2002 | 2004 | 2002 | 2004 |
| Constant | 5.8459*** (.0339) | 6.0956*** .0357 | 6.3056*** (.1003) | 6.5602*** (.1063) | 5.7678*** (.0339) | 5.9479*** (.0352) |
| Schooling | .1046*** (.0019) | .1002*** (.0019) | .0703*** (.0041) | .0677*** (.0043) | .1167*** (.0022) | .1113*** (.0021) |
| Experience | .0369*** (.0018) | .0289*** (.0018) | .0384*** (.0047) | .0224*** (.0046) | .0364*** (.0021) | .0330*** (.0020) |
| Experience square | -.0004*** .0000 | -.0003*** (.0000) | -.0005*** (.0001) | -.0002*** (.0000) | -.0004*** (.0000) | -.0003*** (.0000) |
| Rural | -.2418*** (.0106) | -.3103*** (.0107) | -.0484*** (.0229) | -.5181*** (.0249) | -.1606*** (.0111) | -.2307*** (.0110) |
| Klang Valley | .1283*** (.0159) | .0787*** (.0168) | .1225*** (.0373) | .1089*** (.0419) | .1197*** (.0170) | .0591*** (.0178) |
| Northern | -.3224*** (.0159) | -.2718*** (.0161) | -.3773*** (.0324) | -.2945*** (.0355) | -.3069*** (.0178) | -.2707*** (.0176) |
| Eastern | -.2139*** (.0149) | -.2006*** (.0151) | -.2468*** (.0323) | -.1948*** (.0354) | -.2147*** (.0160) | -.2172*** (.0161) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sabah & Sarawak | -.1084*** (.0165) | -.1820*** (.0162) | -.1726*** (.0362) | -.2367*** (.0383) | -.0914*** (.0179) | -.1699*** (.0172) |
| Wage Salaried | .0760*** (.0135) | .0118** (.0132) | - | - | - | - |
| Married | .1352*** (.0179) | .1498*** (.0189) | .1259*** (.0558) | .2348*** (.0602) | .1231*** (.0188) | (.1116)*** (.0194) |
| Sample | 11,759 | 11,791 | 3,534 | 3,627 | 8,225 | 8,164 |
| F | 636.98 | 579.63 | 172.51 | 169.75 | 524.20 | 479.90 |
| R-squared | 0.3723 | 0.3682 | 0.2918 | 0.3070 | 0.4105 | 0.4106 |

Robust standard errors in parentheses.
*** Significant at 1 % level.
**Significant at 5 % level.

As regard of SE and SW workers are shown in Table 2, column 4 to 7. When we estimated those groups separately, we found that SW coefficient are higher than SE over a period of time, other things being equal. Return to an additional year of schooling for SE was approximately 7 percent for both years. Meanwhile, columns 6 and 7 shows the returns to education for SW workers were 11.67 and 11.13 percent for 2002 to 2004, respectively. As expected, SW workers had higher returns than SE workers by 4.64 and 4.36 percent. The difference between these groups was statistically significant at least at 5 percent level for the year 2002 and 2004 (column 3 and 4). This finding, however, did not provide enough evidence to support an assumption that the self-employed as a group can be assumed to be part of a low status, or low-returns. In addition, beyond these findings, only a little appears to be known about the characteristics of self-employed and employees in our data. Nevertheless, evidence cross countries show a similar pattern. In China, for example, also shows the return SW is higher than that for the SE (Wang, Cai Fang & Zhang, 2010; Xiabeng et at., 2011).

However, our descriptive statistics support the results for the males sample in Kuala Lumpur by Mazumdar (1981) that the self-employed were older than employees, on average. In contrast, Blau (1986) has provided evidence from MFLS 1976-77 (1262 households) that self-employed men have earnings substantially above those of employees with similar characteristics in urban areas. Albeit we have not enough characteristics for these groups, but in all years of HIS with more observations it has been shown that the self-employed have less schooling and obtained lower certificate, definitely.

When using the levels of education, it emerges that the increasing level of education, the earnings gap between SE and SW has increased. For lower level of education, namely "no formal education, primary and secondary education" shows the earnings for SE and SW insignificantly different for both years of surveys. However, the results for pre-university and higher education shows the SW earns more than SE significantly (the results are not reported in this paper) and led them to enjoy higher returns. It is interesting if we could explore details about the characteristics for both of SW and SE but the information in our data not permitted.

## CONCLUSION

This paper focuses on the estimation of the rates of returns to education, distinguishing between the SE and SW. In Malaysia, the education attainment structure is quite different between the two groups of workers. The young generation with high education attainment is more likely to choose a salaried workers rather than self-employed. Their occupational choices are influencing by many factors, however, our finding suggested that by being a salaried workers, particularly for higher level of education, they enjoyed higher return. In addition, a sustainable growth for past two decades with increasing of foreign direct investment, expanding manufacturing and services sectors have been given a significant impact to the demand for highly skill salaried workers. It is probably one of the important factors why educated people choose salaried workers rather than being self-employed. On the other hand, substantial evidence from the literature suggested that a proportion of less educated people have involved in the low productivity relatively. Experience from the developed countries in which were driven by highly value economics activities could be one of the reasons why the returns to self-employed workers are higher. Thus, support from the policy makers is needed in order to increase their income. In this study, our finding did not provide enough evidence to support a notation that self-employed is enjoying a higher return. Therefore, further studies need to be done using a rich data set.

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