Impact of Years of Schooling and Experience on the Income Level of the Employees Using the Mincer Earning Function: Special Reference to Mallawapitiya Divisional Secretariat

MNF Waseema

Lecturer (prob) in Economics, Department of Economics and Statistics
Faculty of Arts and Culture, South Eastern University of Sri Lanka,
E-mail: fwaseema@seu.ac.lk; fathima.waseema73@gmail.com

Abstract: *This earning function is useful as an explanation of historical developments of wage differentials. This study aimed to find the relationship between the income and education and experience. In the most widely used version of Mincer's "human capital earnings function", log earnings are modelled as the sum of a linear function of years of education and a quadratic function of years of potential experience. According to the model, there is positive and significant relationship between the years of education and income. Hence, if the years of education increases by the year income will increase by the 0.114%. Even though, years of experience related with the income significantly and negatively. Therefore, this study suggests that if the year of education increases, that will lead to higher earning of the individual and to improve the national income of the country.*

Keywords: *Education, Experience, Income, Sex*

1. INTRODUCTION OF THE STUDY

Human capital plays a vital role in increasing the productivity and efficiency on the production. Further, education is one of the most important factors to economic and social development. Therefore, human capital becomes a powerful resource through the education. As well as, those who educated well, they earn the higher salaries over the lifetime. At the meantime, they contribute to the economic growth of the country.

In the late half of the 20th century, relationship between education and earnings was propounded in theories. This relationship is made to calculate the rate of return to investment in education.

Jacob Mincer published a book on the name of *Schooling, Experience and Earnings* (Lemieux, 2006) . He introduced his earnings function on that book, as an implication of the theory of human capital. Hence, it has become a standard tool for analyzing earnings differences among individuals allied with schooling and experience. This earning function is useful as an explanation of historical developments of wage differentials.

On the basis of both theoretical and empirical arguments carefully reviewed that Mincer modeled the natural logarithm of earnings as a function of years of education and years of potential labor market experience (age minus year of schooling minus six) in this volume's chapters by Barry Chiswick and Solomon Polachek. In the most widely used version of Mincer's "human capital earnings function", log earnings are modelled as the sum of a linear function of years of education and a quadratic function of years of potential experience.

Education structure in Sri Lanka categorized as primary, junior secondary, senior secondary, collegiate and territory. In Sri Lanka, primary education is compulsory for all. Many schools teach in either Tamil or Sinhala medium due to the variety of ethnic groups. Sri Lanka is one of the main countries which provide the free education for all. Therefore, literacy rate of Sri Lanka is 91.71%.

Nowadays, impact of COVID-19 has given a new opportunity to study in online. But, in this online study, there is positive and negative impacts on education. Because, online education supports to students to learn about the new technologies and innovations. At the same time, online education is less effective. Because, teachers couldn't supervise the students directly. As well as, some time both teachers and students face the network problems due to the poor coverage. In this pandemic situation, poor students cannot get the smartphone and laptop facilities.

Therefore, this study aimed to find the relationship between the rate of return and education and experience.

2.   LITERATURE REVIEW

Polachek, (2007) identfied that firms provide a contract to workers to encorage them to maximize their effort and productivity. Conract models compliment human capital is explaining wages abd other labour market phenomena. This model is cunducted in US using the regression analysis. Furthermore this sudy soncluded that school quality matters an individual's ability and earning rise with greater educational expanditure.

Patrinos, (2016) investigated that education remais a positive, significant and profitable invetment for individual. Further, returns to schooling are highest at the tertiary level. Therefore, it will lead to an increase in demand for tertiary education and put pressure on policymakers to expand university education. Eventhough, it is not the detriment of basic education deu to primary education is a fundamental human service, and access to primary (and secondary) education is a prerequisite for entry into university.

Hartog & Gerritsen, (2016) examined that differences related to differences in earnings concepts and in sampling frame, to reduce bias in intertemporal comparison. For the period 1962–1989, data arefrom six samples of 10,000 ormore observations, collected from company administrations by CBS (Central Bureau of Statistics, the national statistical agency). This studies found a clear U-shaped development in the rate of return to education from 1962 to 2012.

Psacharopoulos & Patrinos, (2018) investigated the latest trends and patterns based on 1120 estimates in 139 countries from 1950 to 2014. This study is found that the private average global return to a year of schooling is 9% a year. Private returns to higher education increased, raising issues of financing and equity. Social and women returns to schooling remain high. As well as, this study shows that girls' education remains a priority.

Patrinos & Psacharopoulos, (2018) stimated the returns to the stages (primary, secondary, and tertiary) of education using an aggregate production function approach. In this study, the human capital is modeled in the Mincerian way to obtain a log-linear equation. To consider the likely heterogeneity among countries, we create subsamples of countries based on their development level and the quality of the schooling. Our estimates from various methods point to heterogeneous impacts of schooling (by levels) across countries. In particular, tertiary schooling seems to have a more important effect in countries with higher level of development and schooling quality, while primary (and secondary) schooling seems to play a more important role in relatively less developed countries with lower schooling quality

3.   DATA COLLECTION AND METHODOLOGY

Data for the research is collected through the primary data collection method. The questionnaires distributed among 500 employees in Mallawapitiya divisional secretariat by using random sampling method.

This study is analyzed in qualitative as well quantitative methods. MS excel and STATA is used to achieve the purpose of the research.

4. MODEL AND ESTIMATION METHODS

In the most widely used version of Mincer's "human capital earnings function", log earnings are modelled as the sum of a linear function of years of education and a quadratic function of years of potential experience:

$$Y(s, x) = \beta_0 + \beta_1 E + \beta_3 X + \beta_3 X^2 + \varepsilon$$

where,

Y is Income

E is Years of Education,

X is years of experience.

ε is a residual for all other variables; some of these other variables may be explicitly specified (e.g. gender or age).

5. RESULTS AND DISCUSSION

Table 1: Discriptive Analysis

```
summarize sex P6 P10  x x2 lnY
```

Variable	Obs	Mean	Std. Dev.	Min	Max
sex	500	.662	.4735023	0	1
P6	500	42.86	13.82123	17	85
P10	500	9.784	3.371658	0	17
x	500	2.8076	1.523293	.2	7.4
x2	500	10.1984	9.747362	.04	54.76
lnY	500	9.903235	1.052865	0	12.61154

Source: Computed Data, 2021

Mean value of sex is the lowest (0.662) and age (P6) include the highest mean value (42.86). Sex and age have the lowest and highest standard deviation respectively. According to the below table, income has the weak and positive correlation with the education and sex. As well as income is associated with the experience and experience squared weakly and negatively. Sex has the weak and negative relationship with education and positive with experience. Education is corralled with experience negatively and strongly.

Table 2: Correlation Analysis

```
. corr lnY sex P10 x x2
(obs=499)
```

	lnY	sex	P10	x	x2
lnY	1.0000				
sex	0.2459	1.0000			
P10	0.4204	-0.0584	1.0000		
x	-0.2393	0.0411	-0.5091	1.0000	
x2	-0.2571	0.0491	-0.5194	0.9614	1.0000

Source: Computed Data, 2021

Income has the positive and weak correlation with the sex and years of schooling. But, experience is neagatively associated with the income. Further, between the sex and experience have the positive and weak correlation and between sex and years of schooling have the negative correlation. Years of schooling negatively correlated with the experience.

Table 3: Regression Analysis

```
. regress lnY P10 x  e2, robust
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```
Linear regression                              Number of obs =      499
                                               F( 3,   495) =59409.22
                                               Prob > F      =  0.0000
                                               R-squared     =  0.9970
                                               Root MSE      =  .05247
```

		Robust			
lnY	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
P10	.1142524	.0008295	137.73	0.000	.1126225 .1158822
x	-.0213736	.0030814	-6.94	0.000	-.0274279 -.0153193
e2	1	.0026029	384.19	0.000	.994886 1.005114
_cons	8.866041	.0137804	643.38	0.000	8.838965 8.893116

Source: Computed Data, 2021

According to the above table, R squared of this model is 0.9970 and adjusted R-squared is 0.9970. R- Squared shows how well the data fit the regression model (Goodness of fit). Higher R-squared figures a better fit for the model and lower R-squared indicates the bad sign for productive models. R^2 the coefficient of determination explains how much linear

relationship has the dependent variable with independent variables. The value of R^2 is 0.9970, which explains that 99 percent variation in the income is explained by the independent variables such as education and experience.

According to the below table, F value of this model is 54910.82. F value is greater than the critical value. Therefore, null hypothesis is rejected at 5% significance level. Hence, this model is concluded that at least one â is not zero.

According to the below table, T value of the independent variables such as education and constant are 141.03 and 765.06 respectively. These are more than the critical value at 5% significance level. Therefore, null hypothesis is rejected and this model found that these three coefficients are significantly not zero. Further, t value of x and e squared are -11.92 and 367.94 respectively.

VIF value of all the variables are below the 2.00. It explains that there is not harmful multicollinearity.

```
. vif
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Variable	VIF	1/VIF
P10	1.35	0.740820
x	1.35	0.740820
e2	1.00	1.000000
Mean VIF	1.23	

Source: Computed Data, 2021

The coefficient on years of education of the basic Mincerian function gives an overall picture of the returns to education. According to the model, there is positive and significant relationship between the years of education and income. Hence, if the years of education increases by the year income will increase by the 0.114%. Even though, years of experience related with the income significantly and negatively.

H_0 *(Null Hypothesis): There is negative relationship between the rate of return and education.*

H_1 *(Alternative Hypothesis): There is positive relationship between the rate of return and education.*

Based on the corrected regression model, null hypothesis is rejected. Alternative hypothesis is accepted. Therefore, this model is concluded that

there is positive, significant and statistical relationship between education and income.

6. CONCLUSIONS AND RECOMMENDATIONS

The Mincer equation has supported to improve the fields of labor and educational economics. It has improved the understanding of the determinants of earnings, the rate of return to schooling, the demand for education, and the importance of labor market experience and on-the-job training. The Mincer equation has clearly helped advance the fields of labor and educational economics. Education remains a positive, and significant investment for individuals. Therefore, this study suggests that if the year of education increases, that will lead to higher earning of the individual and to improve the national income of the country.

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