Determinants of Earnings: A Commentary on Mincer’s Earning Function

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ABSTRACT

The factors that determine the amount of wages or earnings that a person gets remains an advancing area of continuous research since the birth of modern economics and industrialization. Wages are important to workers since it is the single largest source of income and livelihood for many employees. Recently most trade unions have expanded their purview to other areas of employee rights but in the past the main role of these unions were to fight income exploitation and other forms of distributive injustice in wages and salaries administration by employers. Despite the expanding role of trade unions today, issues about employee compensation still dominate labour economic and labour relations issues across the world. The state is also very interested in issues regarding the wages and salaries since it has political, micro economic and macroeconomic effect on the economy. This may explain the reason for the proliferation of numerous studies that have explored the specific determinants of wages. One of such models is the groundbreaking work of Mincer who proposed that the level of education and experience in the labour market affects the amount of wages or income earned by a person based on US Census data. In this study, the objective is to explore the generalisability of “Mincerian equation” within contemporary business environment. This is done by empanelling and analyzing an ensemble of data collected from diversified workforce (educational level and work experience) to determine the effect of these variables on the wages and income earned over a period of time.

Keywords: wages, earnings, mincerian equation, census, labour market

INTRODUCTION

Mincer’s earning function remains the most predominantly used method or theoretical exposition on the determinants of earnings. At the time Mincer (1974) proposed his predictive model, there were a significant number of disputed methods that had been proposed and used by economists in the absence of a more rigorous model. According to Belzil (2008) the predominant earning theories that preceded Mincer’s first attempt in 1958 thought that luck was very important in determining financial success. These traditional theories did not offer any rational economic justification as to why some people earned much while other earned little (Hoekstra, 2009). They were simply consigned with the mass adoption of Adam’s Smith’s theory of compensating differentials and Friedman’s notions of “choices among alternative work model to explain potential differences in earnings (Doran & Fingleton, 2015). But Mincer set into motion what will later become his “magnum opus” and the foundation of modern work on determinants of wages and earnings. It is therefore not surprising that more than half a century after Mincer proposed his model, many researchers have built on it to improve its robusticity and generalisibility (Bowen & Finegan, 2015). Yet these efforts are still without criticisms. Thus this study seeks to determine the extent to which Mincer’s earning model can help explain wage differential...
among different groups of people with different levels of education and experience in the labour market.

Research Aim and Objectives
The aim of the research is to explore the generalisability of Mincer's equation in a UK context. The objectives of the study are:

a. To explore the nature of effect of education on wages of employees
b. To explore the nature of effect of experience on wages of employees
c. To identify differences in the effect of experience and educational level on wages of employees

Research Hypothesis
- H0: There is no relationship between wages and level of education
- H1: There is a relationship between wages and level of education
- H0: There is a negative relationship between level of experience and wages
- H1: There is a positive relationship between level of experience and wages
- H0: There is no significant difference in the effect of education and experience on wages
- H1: There is a significant difference in the effect of education and experience on wages

Outline of the Research
This research is divided into five main chapters to highlight the sequence of activities that were conducted in this research. The first chapter highlights the background of the research as well as the research hypothesis. The second chapter provides an analysis of the literature with specific focus on the application of Mincer’s earning model, earning, education and experience. In this chapter the theoretical and empirical applications of the Mincer’s model of explored in detailed. The third chapter presents the organized set of methods and techniques used to collect and analyze the research data. The results of hypothesis test have then been presented in tables distilled from inferential statistics. The final chapter explains the extent to which the research objectives have been achieved. It also highlights the limitations of the research while outlining future research direction.

LITERATURE REVIEW

According to Saunders et al (2008) every research study must be situated within the context of existing studies on the subject. This is necessary in the light of the fact that a new research must build on what others have already achieved in order to broaden the frontiers of knowledge in the subject area. This chapter is analyses the extant literature on the determinants of earnings. The chapter explores both the theoretical models and the empirical studies that have been conducted in this area in order to set appropriate context for data collection and analysis. The chapter begins by explaining Mincer’s model and how it evolved. The key variables in the model are also examined and explained as well as the empirical literature in support or against the use of the model. At the end of the chapter the information is summarized to justify the proposed hypothesis.

Basis of Mincer’s Model
Mincer’s earning model is a single equation model that says that the amount of earning accruing to an individual from a specific job is determined by the person’s level of education and experience in the labour market. In the original Mincer model, the logarithm of earning is modeled based on a summation of the number of years that a person has been educated and the quadratic function of the potential number of years of experienced gained from the related work. Mincer’s model is denoted by

$$\ln y = \ln y_0 + rS + \beta_1 X + \beta_2 X^2$$

where the variables have the following meanings; \(\ln y\) is earnings (\(\ln y_0\) is the earnings of someone with no education and no experience); \(S\) is years of schooling; \(X\) is years of potential labour market experience.

Mincer’s work was primarily intended to contribute to the extant human capital theory of his time after he realized that the choice of an individual produces the income streams easily evaluated using capital theory. Mincer (1974) treated level of education and occupation as investment opportunities and ingeniously modeled the outcome of a person’s choice of investment. The model assumes that individual’s invest up to the point where the cost of investment is just equal to the present value of the gains of schooling to obtain a tractable and simple econometric specific (Brunello & Comi, 2004). This led to the new famous log linear earning function that provides both a measure of private rates of return to schooling which can then be generalized to get a post school; on the job training returns as well. Thus the fulcrum of the work of the Mincer (1974) is that the workers’ wages increases consistent over the life
cycle at the decreasing rate and that yields a concave earning profile for most individuals.

**Education and Income**

According to Kahn & Lange (2014) the original Mincer model is grounded on the principle of compensating differences and this is what helps to explain why persons with different levels of education are likely to receive different earnings over their lifetime. Kahn & Lange (2014) contends that individuals have identical abilities, identical opportunities, perfect credit market and perfectly certain environment but different occupations require different levels of schooling. Since individuals are not identical, they need a compensating wage differential in order to work in occupations with longer period of education (Abreu, et al, 2015). In this way equating the present value of earning streams net of the cost associated with the different levels of investments determines this compensating differential.

Mincer’s framework typically ignores any act of uncertainty about the future earnings as well as the non pecuniary cost and benefits that is associated with work and school (Abreu, et al, 2015). Further analysis and justification of the rate of return to education is shown by Abreu, et al (2015) who explains that the positive correlation between the schooling and a person’s earnings in an empirical research. Moreover Abreu, et al (2015) contends that the evidence in support of the education rate of returns is also not context or country specific. This is because Mincer’s model has been tested and its compatibility is underscored in many countries than a significant number of economic models.

For example in a 25 years longitudinal study spanning the determinants of schooling rate of returns for over 70 countries, Psacharopoulos and Patrinos (2004) established the validity in the claim of the Mincer (1974) by noting that schooling is a major determinant of the earnings. Similarly Trostel, et al (2002) confirmed this trend when they estimated the schooling rate of return for 28 countries. In an earlier study Ashenfelter et al. (1999) synthesizes a collection of literature presented in a special issue of the Labour Economics Journal devoted solely to estimating schooling rates of the return. They observed strong evidence in support of the notion that schooling is a powerful investment in a wide variety of countries with incomparable income returns. Chiswick, Lee and Miller (2003) further confirm this assertion based on an analysis of the 1996 Australian Survey of Aspects of Literacy and the result showed that education is a value-added process. The found out that education leads to improvement in literacy and numeracy skills which are positively correlated to income. The work of Gabriel and Schmitz (2005) is another confirmatory work on the role of schooling in income determination. Based on the 2003 Population Survey in the US, the authors found a positive correlation between earnings and education. Further the results of the rate of return to education across occupational categories in the U.S. labor market were also noted to be positive (Gabriel and Schmitz, 2005).

Moreover, the study also noted that “additional schooling” was positively correlated to average weekly earnings in both white- and blue-collar occupations irrespective of their gender. Based on the cross section analysis of the rate of returns computed for 41 countries based on the International Social Survey Programme (ISSP), Bönke, et al (2015) observed a positive magnitude of returns. Also in the work of Bönke, et al (2015) they explain that the educational levels do not only affect wages positively but schooling also enhances real output. This sentiments are shared by Zvi Griliches (1963) as cited by Frederiksen, et al (2015) and Pinitjitsamut (2012) who uses an aggregate state (and regional) data and found out that the farm production was even largely positively influenced by higher levels of education which gives the opportunity for the owners to pay higher wages and income to the workforce. Another study that affirmed the importance of education in stimulating productivity is the work of Kumbhakar (1996) as cited by Polachek (2008) who analyzed productivity data from 296 household farms in India’s West Bengal. The overriding importance of schooling in productivity is reaffirmed by the authors that eventually enhance the income of farmers and their workers.

The general applicability of Mincer’s equation is once again emphasized in the study of Benmelech and Berrebi (2006) who applied the Mincer’s equation to analysis of panel data in Palestine. The study specifically analyzed data on the biographies of suicide bombers selected from Palestine. The results showed that the more educated suicide bombers were more likely to succeed in their mission and succeeded more in inducing causalities when they attack. If these results are generalized, to economic growth, the work of Barro and Sala-i-Martin (1999) as cited by Sala-i-Martin, et al (2004) provide an important generalization of Mincer’s equation.

Applying this understanding to a whole population, the researchers noted that the higher the education level of a population, the higher its GDP and GDP growth per capita. This finding is consistent with an earlier claim by Borjas (1993) as cited in Nedelkoska & Ederer (2015) who noted that education has a
direct measurable effect on productivity and productivity dependent indices and labour market success and other non labour market activities. A case in point is the work of Michael (1973) as reported by Tangtipongkul (2015) who noted that the level of education has a positive measurable effect on a person’s consumption capacity for daily commodities. An illustration of “reverse intergenerational transfers” is provided by Polachek and Polachek (1989) as indicated in Clark, et al (2015) who found out that each child’s education by a family has a positive effect on the way they consume.

Experience and Income
The second factor that Mincer (1974) describes in his model is the effect of experience on income. Experience in this context refers to the accumulated knowledge and expertise gained by a person over a prolong period of practice in a specified area or in the labour market (DiPrete & Eirich, 2006). The level of a person’s experience includes the amount of practical or hands-on expertise gained from persistent performance of a task or set of tasks over and over again. According to Bol (2015) a person will become more productive based on the amount of skills that he or she accumulates through experience in a labour market. This can stimulate higher income for himself and workers (Powdthavee, et al, 2015). In the opinion of Mincer (1974) experience and education is negatively correlated to each yet both of them are positively correlated with earnings. Moreover the effect of education on earning is generally linear but the effect of experience on earnings is quadratic in nature. The combination of these two factors thus suggest that eventhough levels of education and experience influences earnings, they converge to a common summit or maximum earnings after which the earnings begins to decline at a certain level of combination of earnings and experience in the market.

Summary of Literature
The objective of this research is to examine the determinants of earning differences among people. It has been established that Mincer’s earning function is the most frequently used model or theory to explain the factors that determines earnings. The study has revealed that Mincer’s equation is perceived as very timely upon its proposition because until then the available models were very disputable in terms of their validity and robusticity. Rarely did these studies offer any rational economic justification as to why some people earned much while other earned little. On the contrary they simply evaluated earning differences from the perspective of Adam’s Smith’s theory of compensating differentials and Friedman’s notions of “choices among alternative work model in order to explain potential differences. Empirically the two fold determinants of the earning differences proposed by Mincer (educational level and experience in the labour market) have been found to be valid to a large extent. For example the current stock of studies affirming the validity of this model cuts across continents including Asia, Africa, Europe and the North and South America. These notwithstanding a fairly relevant number of studies have also criticized the model in terms of its generalisability and over simplification of the factors influencing earnings. Thus these few challenges require continuous empirical testing of this notion particularly with respect to the robusticity in order to advance the frontiers of this area of study.

List of References


