

Income Distribution and Human Capital Development: Examination of Mincerian Human Capital Model

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ABSTRACT

The present study is based on the Human Capital model developed by Becker (1964) and Mincer (1974). The study incorporates natural logarithm of monthly income which is linear function of completed years of schooling, student experience and square of experience. Two equations are formulated to determine the relationship of different level of education and experience over income by using Mincer model of human capital as a frame work. The study concludes that income is a linear function of education and experience.

Introduction

According to Becker (1962) and Mincer (1974) theory of human capital considered participation in education as an investment in human capital due to its expected return later in life. Therefore, it can be said that the main sources of human capital development are education and training. Level of education and trainings positively affect the level of income. Economists consider education as both capital and consumer go. Because it provides satisfaction to the household and it is also used as an input into the production process. The MINCERIAN model has provided the framework for many studies of the rate of returns to education. A vast knowledge is available on estimation of education-earnings relationship of different level of education. Schultz (1961) indicated that even the lower level of returns to education was almost equal to the higher return to non-human capital. The study explored almost 11 percent return from both high school and college education. And 36 to 70 percent of the increase in the labor income was due by the returns to the extra education of the laborers.

Tinbergen (1971) studies the impact of education on income distribution. He found that, increase and smaller dispersion in years of schooling would only moderately reduce degree of inequality. Khan and Irfan (1985) analyze the benefit of different levels of education found out that the return to education is positive however it was different at different level of education. Shabbir, T (1991) analyzes the effects of short diplomas as rate of return to schooling in Pakistan. He found out the significant effect of diploma certificate at different level. Barro (2000) concluded that growth rates were inversely related to stock of physical capital whereas human capital had a positive impact on

economic growth rate. Khilji (2005), examine how education can be used as a factor of human capital formulation to accelerate the economic development in Pakistan. He concludes that the policies to improve the education quality should be made and implemented. Moheyuddin (2005) conclude that there should be appropriate investment in women's human capital. He argued the case for removing gender inequality in education to increase the per capita income of woman labor.

Shah (2007) indicates significant impact of education on earnings of female teachers. He concludes that with every rise in education level, there was an increase in monthly earnings of teachers. The quality of education work as a base of economic Development: Educationally developed societies have relatively low population growth, low levels of fertility, and mortality and specially the increasing role of women labor force participation in the labor market. Because education is a major factor of revolution, societies may use their educational institutions as important mechanism to speed up the process of societal transform by educating the society about the benefits of education. Brunello and Comi (2000) found that tertiary educated workers had steeper experience profile than secondary level educated workers. They found that differences in growth of earnings were due to different education level. Soto (2009) Used panel data of 83 countries and observe heterogeneity in the results of different countries. He indicates that schooling quality was an important determinant of income disparities across countries. Therefore, the level of education is likely to influence social and demographic factors like fertility, mortality, life expectancy, health and nutrition, and distribution of income.

Castello and Hidalgo (2009) developed an analytical model to study the impact of education on economic growth and human capital accumulation. They indicate that, the quality of education is determined by both the productivity and years of schooling. Finally they concluded that, secondary education plays an important role in country specific growth, however, in the long run tertiary education has a significant role to play as compare to secondary education. Tasçi and Oksuzler (2010) investigated the major determinants of income inequalities in turkey based on the micro level data for the period 2004-2005. They found that the increase in education results in increase in income irrespective of the gender. They conclude that, the high cost of education in turkey should be considered as future investment and students should bear some the cost associated to higher education. Chintrakarn (2011) used panel data and fixed effect model to analyze the relationship between education and income inequalities in USA for the period 1988-2003, the study indicates that increase in level of education has a significant role in reducing the income difference in USA.

The Case of Pakistan

Pakistan is a participant in the world declaration "education for all" and the framework for action to meet basic learning needs, emerging out of the world conference on education (1990), and the Delhi declaration (1993). However, the literacy rate in Pakistan is very low comparing to its ever-growing population rate. It has a population growth rate of 1.8%. The literacy rate of Pakistan is lowest among the countries of Asia.

The education index of Pakistan is 0.466. In the recent years the government of Pakistan greatly emphasize the higher education but it still requires a huge investment form the government in education sector. According to the UNDP HDI report about the Asia pacific the Human development index (HDI) which is calculated by including the "education, life expectancy, and GDP" of country, shows Pakistan's Human Development Index (HDI) at "0.572%" which showed a minor progress of "1.28%" and reached 0.572%".

Even though, there has been a small improvement in "HDI". It shows how important it is to focus on the critical issues like health and education. In the year 2010 there was a huge cut down in the budget of higher education which affects the previous efforts for the expansion and improvement in education standards in the country. Increasing cost of education may result in slowing down the already low literacy rate in Pakistan, which consequently cause a decline in private and social benefits of higher education for people of Pakistan. The objective of this study is to investigate the impact of increase in years of schooling and experience over Earnings of the public sector, teaching staff in Pakistan.

Data Collection and Methodology

Data and Estimation Procedure

Data is collected through questioner from the sample of 150 people selected from a stratified sample from the different public sector education institutes in Quetta; includes teaching staff of school, collages, and universities. Public sector is chosen for this study to avoid complexity because public sector institutes have uniformity in salary packages. The selection criterion is teaching staff with different education, and experience level. The starting education level for this research is FA/FSC (12-year education) and the highest level of education is PHD (21 years of education). The minimum experience is 1 year and maximum experience is 35 years. And the income level starts from rupees 6000 to rupees 180000.

The income level is based upon the experience and the different trainings, and the designation. E.g. in case of school teaching staff the teachers are appointed with the designation of "J.V.T, J.E.T. S.S.T" some of them are with additional qualifications and training like "B.E.D, M.E.D", and the teaching staff of colleges and universities are appointed with the designations of " lecturer, assistant professor, associate professor, and professor". The teaching staff working on tenure track are earning additional income as compare to teachers with same qualification and experience but not working at tenure track. The variables used in this study includes, "level of education", "years of experience" and "level of income" of teaching staff of public sector education institutes of quetta.

Formulation of Hypothesis

- Ho: there is no impact of higher education and experience over income I.e. the two variables of classification are independent.

- H1: there is an impact of higher education experience over income I.e. the two variables of classification are not independent.

Model Specification

The present study is based on the Human Capital model developed by Becker (1964) and Mincer (1974). The study incorporates natural logarithm of monthly income which is linear function of completed years of schooling, student experience and square of experience. Two equations are formulated to determine the relationship of different level of education and experience over income by using Mincer model of human capital is used as a frame work.

- 1) Income is a linear function of education and experience so here we use the log liner model to determine the effect of experience and education in association with monthly earning.

$$Y = f(\text{Edu}, \text{Expr}, \text{Expr}^2)$$

$$\text{Ln}Y = _ + _1\text{Edu} + _2\text{Expr} + _3\text{Expr}^2 + \mu_i$$

Ln = natural logarithm

Y = monthly income of teachers

Edu = years of education

Expr = years of teaching experience

μ_i = error term

- 2) The income differs at different level of schooling and with the increase in experience. So it is important to take in account the different level of education attained by the people. In order to measure the income at different level of schooling following equation is used. The OLS model is used to test the log linear equation which includes the five dummy variables.

$$\text{Ln}Y = _ + _1D1 + _2D2 + _3D3 + _4D4 + _5D5 + _6\text{EXP}_i + _7\text{Expr}^2 + \mu_i$$

Ln = natural logarithm

Y = monthly income of teachers

D1 = 1 for FA/FSc (12 year education), 0 otherwise.

D2 = 1 for graduate (14 year education), 0 otherwise.

D3 = 1 for Masters, (16 year education), 0 otherwise.

D4 = 1 for M.Phil, (18 year education) = 0 otherwise.

D5 = 1 for PhD, (21 year education) = 0 otherwise

Expr = years of teaching experience

μ_i = error term

Results and Discussion

The results of the first OLS equation given in table-1 shows significant results. The coefficient of education indicates that one year increase in education level increases the income level up to 21.8%. While the coefficient of experience indicates that one year increase in experience will only increase the income to 8.5%. The value of F-statistics indicates that the model is good fit and R² show that 71% variation in the income of teaching staff is caused by the change in education and experience. The concavity of age/experience-earning profile is clear from the negative and significant coefficient of experience. The results of the OLS for the second equation given in table-2 also shows significant results except the coefficient of "D1" which represent education level "FA-

FSC" - where the increase schooling years from the preceding indicates only 1.36% increase in income.

The coefficient of "D3" is significant and indicates that the graduate earns 23.3% more than person having only inter level education. The coefficient of "D4" which is also significant, indicate that the person having 16 years of education earn 46% more than the person having only 14 years of education. Moving towards more higher education, the coefficient of "D4" also indicates positive and significant impact; The person having M.Phil/MS equivalent to 18 years of education earn about 20.6% more income than the person having 16 year education. The coefficient of "D5" indicate that person having PHD degree will earn about 27.8% more income than the person having 18 years of education. And the coefficient of experience indicates the 7.3% increase in income by increasing the one year experience. The negative coefficient of the square of experience shows that, as experience increases income also increases but at a decreasing rate.

Conclusion

From the analysis it is confirms that the higher education level has significant impact on earnings of teaching staff. Thus we can reject our null hypothesis and conclude that "Education Pays More" in monetary terms because it is a key factor in enhancing the efficiency and productivity of labor force. The future of any country lay in the hand of the students of present time, and their future rests in the hands of teachers. So it can be said that, Teachers have the future of the country in their hands. Thus, it is very important that the teacher should be free from financial worries and can focus at his/her task. Even a learned, sincere teacher can't bring best out of student if he/she suffers from monetary problems because his focus diverts form teaching to earning more to feed his family. But when that teacher is free from these worries will produce honest, knowledgeable and productive society. It is very important that the highly educated persons especially teacher earn a respectable and sufficient amount of money because it is in utmost favor of the country.

- Pakistan needs to develop a good strategy of human development in which good quality education, adaptation and skill acquisition should be given the primary importance.
- A number of steps are required to increase demand as well as the standards of education; a strategy for this purpose is as under:
- In the field of education, practice of imparting general education, especially at matric and intermediate level, needs to be changed according to the international standards.
- To improve the standard of English special courses should be organized for employed personals as well as the students of different institutions.
- An emphasis should be made on new skills such as office management, computer operations and programming, and word processing
- To improve the educational quality of teaching staff, they should be given incentives in form of job security, exemption or at least relaxation in academic fees and permission of leaves

- with Full pay, so academic staff can focus on improving his education and skills without worrying about their jobs and additional burden of expenditure. This strategy requires that individuals, educational institutions and policy makers must work together, to put this strategy in to practice, to be able to face, the emerging challenges of globalization and integration.

References

- Barro, R. (2000). "Inequality and growth in a panel of countries" *Journal of Economic Growth*, 5: 5-32.
- Becker, G. (1962). "Investment in human capital: a theoretical analysis" *Journal of Political Economy* Vol 70, Supplement.
- Becker, G. (1964). "Evaluating the impacts of human capital stocks and accumulation on economic growth: some new evidence" *Oxford Bulletin of Economics and Statistics* 58(1): 9- 28.
- Brunello, G. and Comi, S (2000). "Education and earnings growth: evidence from 11 European countries" *Economics of Education Review*, Vol 23, No. 1, pp 75-83.
- Castello, A., and Hidalgo. (2009). "Quality and Quantity of education in the Process Of Development", Unpublished Manuscript.
- Chintrakarn, P. (2011). "Education and Income Inequality: Evidence from US States" *International Research Journal of Finance and Economics*, (6): 115-19.
- Khan, S.R. and M, Irfan (1985). "Rate of return to education and determinants of earnings in Pakistan" *Pakistan Development Review*, Vol. 34, pp. 3.
- Khilji, A. Bashir. (2005). "Review: Education as a factor of human capital formation in Pakistan, (1951-1998)" *Journal of agriculture & social sciences*, 1813-2235/2005/01-4-370-373.
- Mincer, J. (1974). "Schooling, Experience and Earnings" New York: National Bureau of Economic Research.
- Moheyuddin, Ghulam. (2005). "Gender inequality in education: impact on income, growth and development" MPRA, Paper No. 685, pp. 01-12.
- Schultz, T.W. (1961). "Investment in human capital" *The American Economic Review*, Vol. 1, L1.
- Shah, R. (2007). "Impact of higher education on earnings of women in the public sector educational institutions in Pakistan" *International Business and Economic Research Journal*, 6 (11): 117-124.
- Shabbir, T. (991). "Sheepskin effect in the return to education in a developing country" *The Pakistan Development Review*, Vol. 30, No. 1, pp 1-19.

- Soto, M. (2009). "The causal effect of education on aggregate income" Paper provided by International Economics Institute, University of Valencia in its series Working Papers with number 0605.
- Tasçı, M.H. and Oksuzler, O. (2010). "Income Differentials and Education in Turkey: Evidence from Individual Level Data" International Research Journal of Finance and Economics, 51: 119-131.
- Tinbergen, J. (1972). "The impact of education on income distribution" Review of Income & Wealth, 18(3): 255-265.