



Rate of Return to Investment in Education: A Case Study of Faisalabad

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Abstract

The main aim of this research was to obtain rate of return to investment in education which is based on human capital Theory. This study seeks to find association between experience, education and earnings of university teacher. Therefore, this study is based on primary data which was collected from selected universities of Faisalabad. By using OLS techniques, this study analyzes the data and explores and concludes that experience and raising level of education put positive impact on earnings of university teachers. Furthermore it also describes that male teachers earn more than female teachers in education sector. The findings proved that the return to investment in education for polytechnic diploma program is fairly attractive and socially profitable for 2006.

Keywords: Education, experience, investment, rate of return, Faisalabad

Introduction

The main idea of the theory of human capital is that investments are made in human resources which increase the productivity of resources (Schultz, 1963; 1972). Becker (1964) explored that individual make choice of investing in human capital by doing a benefits and cost analysis and demonstrating that an investment in training and education to increase one's human capital was as important and measureable as investment in other forms of capital (Shinebaatar, 2008). Mincer 1974 applied a simple regression and found that the earnings were related to schooling and other human capital factors. (Todaro, 2005) suggested that human capital

is productive investment embodied in human persons. These include skills, abilities, ideals and health resulting from expenditure on education, on the job training programs and medical care.

The earnings premium associated with additional education can be thought of as a 'rate of return' on that educational investment so, one can say that "return" on the human capital (productive investment) can be derived from how much these "education" and "on the job training" can earn in the market (Walker & Zhu, 2003). Other than monetary returns, there are non-monetary returns to education and work experience. Education and work experience also affects the level of enjoyment from job and probability of being unemployed. Moreover, education and work experience guide individuals to make better decisions about health, marriage, and parenting. It also

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improves patience and makes individuals more goal-oriented; (Kolesnikova, 2010)

Investment in knowledge and skills of a particular worker can be thought of as having taken place in three stages. First, in early childhood, the acquisition of human capital was largely determined by the decisions of others. Parental resources and influence basic language and mathematical skills, attitudes toward learning, and one's general health and life expectancy. Second, teenagers and young adults go through a stage in which their acquisition of knowledge and skills is as full-time students in a high school, college, or vocational training program. Finally, after entering the labor market, workers' addition to their human capital generally take place on a part-time basis, through on-the-job training or participation in relatively short formal training programs (Ehrenberg and Smith, 1997). At the individual level, education is important because it is a crucial determinant of individual earnings as well as individual human development. At the broadest level, it is important due to the benefits resulting from increased educational attainment to the society as a whole like education reduce crime, raise more productive labor force, reduce unemployment, reduce corruption and raise level of production. Moreover, education limited birth rate, raise socio-economic status, improve living standard and improve literacy rate. Education also instigates confidence which give power to people so they can defend their rights, get better health status and fine governance in execution of socio-economic policies (Government of Pakistan, 2009). The human capital investment made after one has started to work arise from training received at work-place. The presence of this type of training is difficult for the economists to directly observe, much of is informal and not publicly recorded (Ehrenberg and smith, 1997). Human capital theory often incorporate factors other than those explained above. Some of them are whether mothers of the respondents are working or not, study field (i.e. specialization in sciences, arts or social

sciences), number of working hours, performing administration responsibilities along with teaching responsibilities or not, attainment of professional education like B. Ed etc., participation in co-curricular activities and the fact that whether respondents were a regular or private students. Together all these factors are responsible for the changes in salaries of different teachers.

This study tries to explore relationship between salaries, experience and education of teachers working in Universities of Faisalabad city. Moreover, this study investigates whether gender and sect oral pay differential exist in the salaries of teachers who teach in universities of Faisalabad or not. Furthermore, this study also tries to find out the impact of work experience on the earnings of teachers in Faisalabad.

Objectives

This research try to identify the factors which affect the earnings of teachers and also try to find the relationship between experience of teachers and earnings of teachers.

Plan of the study is given as follows:

Chapter 2 presents a review of literature by reviewing relevant research associated with this study. Chapter 3 deals with data and methodology. This chapter includes the procedure for data collection and procedure for analysis. Chapters 4 contain analysis of data and presentation of results. Chapter 5 states some suggestions.

Review of literature

Afzal (2011) identified and then estimated the factors affecting the earnings of the employees in district Lahore of Pakistan. He used primary source of data and the sample size of 3,358 teaching and non-teaching employed from different institutions (i.e, schools, colleges, and Universities) which provide general education.

Ashraf (2011) estimated returns for different levels of education. He used data from Pakistan Integrated Household Survey, 2001-02. He found that, Returns to education were higher for females than for males at the lowest level of schooling. Moreover, he found that age was positively and significantly correlated to earnings. Furthermore, the negative sign of the coefficient for age-squared implied the concavity of the age-earnings profile. The coefficient of age-squared was significant in all cases but it was not significant for females. The result showed that married men earn approximately 8 percent more than their unmarried counterparts, while the gain for married women is 6 percent. The results also showed that the coefficient estimate for instruction in the English language was positive and highly significant for both males and females.

This coefficient suggested that individuals from English-medium institutions earn approximately 35 percent more than those from institutions using regional languages. The impact was very similar for both males and females. The coefficient for Urdu was also positive and statistically significant, but less than for English. An important finding of this research was that a return for females (i.e. 13 percent) was considerably higher than for males (i.e. 5 percent) at the Middle level of education. He suggested that policy makers should devote more resources toward female education, in a country where large numbers of women go without any formal education.

Chaudhry *et al.* (2010) estimated relationship between health, education and female earnings. They confirmed the role of education and health as productivity enhancing device and also showed that higher earnings were associated with higher levels of education. Hyder (2007) explored that there was a presence of huge wage gap between those who had no education and those who had education.

Kifle (2007) estimated private rate of return to education in Eritrea. They used OLS method. Data was drawn from employees working in public and private sector of the economy. He concluded that private rate of return to investment was high. He also found that higher the level of education, higher the rate of return was. Moreover, increase in one year of work experience had positive impact on earnings. Furthermore, he showed negative sign on tenure coefficient. In addition to that positive coefficient of dummy variable for gender implied that the wage differential between male and female employees was due to gender or factors related to gender that were not accounted for in the regression.

Shah (2007) and Javed *et al.* (2010) tried to find out the impact of higher education and experience on the earnings of women, teaching at public sector educational institutions and showed that higher education plays a positive role in enhancing the earnings of women teaching at public sector educational institutions in Islamabad. Sanroman (2006) estimated the economic returns to schooling in Uruguay and concluded that education was a very profitable investment.

Amin (2005) estimated private returns to education on three educational levels namely, primary, tertiary and higher level of education and found positive association between different level of education and return. Asadullah (2005) found that an additional year of schooling increase the earnings by seven percent. Okuwa (2004) and Yang (2005) suggested that quality and investment in higher education could be improved by encouraging private individuals to invest in higher education.

Nasir (1998) explored the role of human and non-human capital factors which were influential in estimating the earnings of workers in Pakistan. Data was drawn from The Labor Force Survey data 1993-94. He used Ordinary least square (OLS) estimation

technique. He found that in human capital variables, education was significantly related to wage determination. In non-human capital factors, occupation and size of the establishments were found to be significant variables. Moreover, he included variables like regional location and technical training. Furthermore, he observed sample selection bias for female workers but no problem was observed for male workers.

Data and methodology

This study investigates the returns to education to teachers teaching in the three major universities of Faisalabad like Agricultural University, Faisalabad, GCU, Faisalabad and University of Faisalabad.

Data are based on primary data and it was developed in the light of objective of study. The total number of observations was 180. In the present study, the data were collected from concerned university teachers by taking interview person to person contact. A well-structured interview schedule is a set of closed-ended questions, which were asked from the respondent in face-to-face contact. An interview schedule was developed in the

light of objective of the study. The interview schedule contained 34 questions. It was prepared in English for academic purpose but questionnaires were asked in Urdu for convenience. Although the respondents were told about the whole purpose of this interview (to write a research report) yet most of the respondents regarded the interviewer as a government agent were reluctant and suspicious to reveal personal information about their families.

Specification of the models

The nomenclature of the model is based on the following specifications:

Model B

Where,

Y = monthly salary of teachers

Education = education (Years of formal education)

Experience = experience of respondent working as teachers (in months)

D GENDER = 1 if male, 0 otherwise

D SECTOR = 1 if private sector, 0 otherwise

D edu F = 1 if father is educated, 0 otherwise

DeduM = 1 if mother is educated, 0 otherwise

Table 1: Regression results of model A

Regressors	Coefficient	t-value	Prob
intercept	8.654	24.82	0.000
Education	0.116	6.064	0.000
Experience	0.003	12.460	0.000
D Gender	0.296	4.018	0.000
D sector	0.130	0.651	0.281

Dependent variable; Earnings of teachers, R² = 0.689 D.W = 1.345

Interpretation of regression results

The results are given in Table 1. In the model the dependent variable is natural log of monthly salary while explanatory variables are education, experience, gender and sector. The coefficient of education is statistically significant and shows that on average if 1% increase in education level, the salaries of the teachers goes up by 11 percent, while other

independent variables remain constant. It means that both variables have positive correlations.

The coefficient of experience of teachers is statically significant and it has also positive relationship between dependent and explanatory variables. It explores that if 1% increase takes place in the experience of

university teachers, the earnings of the teachers boost up by 0.3%. Both variables have positive associations. The coefficient of gender is statistical significant and tells us, on average, male teachers earn 30 percent more than female teachers.

In the regression results, the coefficient value of sector is not statistically significant and shows that, those teachers who teach in public universities do not earn more than the teachers who do job in private universities.

As R-squared is 0.70; this means that the model explains the 70 percent of the total variation of the Y value. The remaining 30 percent of the total variation in Y is unaccounted for and attributed to the error.

The adjusted R-squared adjust for the number of independent variables in a model and increases only if new independent variables improve the model more than would be expected by chance. For this model, it is 0.70 which shows that model is a good fit even

when accounted for extra independent variables.

Table No. 1 also showed that OLS fit a plane which minimized the sum squared residuals $(\sum e)^2$ to be 38.26, i.e. where sum of errors $(\sum e)$ were equal to zero.

Standard error of regression $(S_{Y.\hat{Y}})$ shows the variability of Y's around regression line. By dividing standard error of regression over mean dependent variable we got 4.43 percent. As this figure is less than 10 percent its mean there is lot of variability that is explained by this model.

Model B: Parental education as proxy variable for ability

$$\ln \hat{Y} = \hat{\beta}_0 + \hat{\beta}_1 Education + \hat{\beta}_2 Experience + \hat{\beta}_3 D_{GENDER} + \hat{\beta}_4 D_{SECTOR} + \hat{\beta}_5 D_{eduF} + \hat{\beta}_6 D_{eduM}$$

Table 2: Regression results of model B

Regressors	Coefficient	t-value	Prob
intercept	8.054	24.85	0.000
Education	0.146	6.964	0.000
Experience	0.004	6.460	0.000
D Gender	0.296	4.018	0.000
D Sector	-0.253	-0.651	0.481
DeduF	0.481	0.551	0.681
DeduM	0.158	0.751	0.981

Dependent variable; Earnings of teachers, $R^2 = 0.699$ D.W = 1.3

The results of model B are given in Table 2.

The coefficient of education is statistically significant and shows that on average if 1% increase in education level, the salaries of the teachers goes up 14 percent, while other independent variables remain constant. It means that both variables have positive associations.

The coefficient of experience of teachers is statically significant and it has also positive relationship between dependent and

explanatory variables. It explores that if 1% increase takes place in the experience of university teachers, the earnings of the teachers boost up by 0.4%. Both variables have positive associations. The coefficient of gender is statistical significant and tells us, on average, male teachers earn 30 percent more than female teachers.

In the regression results, the coefficient value of sector is not statistically significant and shows that, those teachers who teach in

public universities do not earn more than the teachers who do job in private universities.

As R-squared is 0.70; this means that the model explains the 70 percent of the total variation of the Y value. The remaining 30 percent of the total variation in Y is unaccounted for and attributed to the error.

The values of dummy variables are statistically insignificant, which shows that there is no influence of female education or male education on the earnings of teacher.

The adjusted R-squared adjust for the number of independent variables in a model and increases only if new independent variables improve the model more than would be expected by chance. For this model, it is 0.70 which shows that model is a good fit even when accounted for extra independent variables.

Conclusion

In this research the study investigated that rate of return to investment in education which is based on Human capital Theory. This study use primary data which is taken from three selected universities in Faisalabad. By using OLS techniques, this study analyzes the data and explores that experience and raising level of education put positive impact on earnings of university teachers. The coefficient of education is statistically significant and shows that on average if 1% increase in education level, the salaries of the teachers goes up 14 percent, while other independent variables remain constant. It means that both variables have positive associations.

The coefficient of experience of teachers is statically significant and it has also positive relationship between dependent and explanatory variables. The coefficient of gender is statistical not significant because values are statistically are insignificant. In nut shell level of education and experience of teachers have positive influence on the level of earnings.

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