ESTIMATING RETURNS TO EDUCATION FOR SELF-EMPLOYED WORKERS IN GUWAHATI

Namita Das[1]

[1]Research Scholar, G.U, Associate professor, Department of Economics,
Pragjyotish College,Bharalumukh, Guwahati, Assam, India

Dr. Gayatri Goswami[2]

[2]Associate professor, Department of Economics,
Gauhati University, Guwahati. Assam, India

ABSTRACT

This paper estimates the returns to education and experience for self-employed workers in the urban informal sector of Guwahati city. The standard Mincer's earning function is used to show the role of human capital on workers earnings using primary data collected from the self-employed in Guwahati City. The self-employed, which form the largest component of the workforce in Assam and Guwahati, have so far been neglected. Given these circumstances, it becomes imperative to investigate into the returns to education and experience that accrue to self employed individuals in the informal sector of Guwahati. The findings indicate that education has a positive impact on workers earnings while experience and experience square are not significant variables. The study also finds that women tend to earn lower earnings than men.

KEYWORDS: *Mincer's earning function, self-employed, Guwahati city, urban informal sector, tertiary sector*

INTRODUCTION

The development of human capital (education) is vital for outcomes in modern labour market. Becker (1964) developed a theory of human capital formation and analysed the rate of return to investment in education and training on growth. A number of studies conducted in different countries at various times confirms the fact that more educated individuals earn higher incomes, experience less joblessness and work in more established occupations than their less educated counterparts. Therefore, this study examines the role of human capital on workers earnings in the urban informal sector of Guwahati. Given the size and nature of workforce employed in the informal sector of Guwahati, it becomes imperative to study the impact of human capital on the earnings/productivity performance of the sector.

Psacharopoulos (1994) showed that there is a significant and positive relationship between education and earnings which is more or less universal, including in the middle and low income countries. Compilations of rate of return estimates to investment in education have appeared in the literature since the early seventies (Psacharopoulos 1973, 1981 and 1985). The returns to education may be estimated using two alternative approaches, namely the elaborate method and the earnings function method (Psacharopoulos, 1994). The elaborate method requires information on the cost of education which is not easily available and hence the earnings function method is widely used. The earnings function also facilitates measurement of returns to other forms of human capital such as training and health. (Schultz and Tansel, 1997).

Thus, whether to continue education beyond a certain level or to enter the labour market is an important investment decision. According to the human capital investment theory, "an individual

would prefer to attend school only if the present value of the expected benefits from schooling exceeds that of the expected costs" (Becker, 1993). Thus, an important determinant of the demand for schooling or training is its expected benefits. Since the benefits depend upon the quantity and quality of an individual's labour input, which, again, in turn depends upon the human capital acquired during schooling, therefore, the education-wage relationship can be used to measure the returns to schooling.

There is extensive literature on returns to education or schooling for both developed and developing countries. These studies show that, internationally, one additional year of education adds approximately 10% to a person's wage, at the mean of the distribution (Psacharopoulos & Patrinos, 2004). Until recently, the evidence has suggested that the returns in developing countries are generally larger at primary level than at secondary and higher levels of education. Some have interpreted this to be consistent with a notion of diminishing returns to education. However, recent evidence suggests that the rate of return to primary education may now be lower than that of post-primary levels of education. A number of studies using 1990s and early 2000s cross-section data find that the return to primary education in wage employment is significantly lower than that to post-primary education (Bennell, 1995; Calclough, Kingdon, & Patrinos, 2009).

In India also, a number of studies have been made based on nationally representative surveys (Duraisamy, 2002; Dutta, 2006; Kingdon and Theopold, 2006; Madheswaran and Attewell, 2007). While other studies (Tilak, 1987; Kingdon 1997, 1998) use small sample surveys and are confined to a particular district or state of the country. Some national level estimates of private rates of return to education made for urban India include Gounden (1967) and Blaug, Layard, and Woodhall (1969) which convincingly show that investing in education is profitable in India. Since then attempts have been made to estimate the returns to education primarily using small sample surveys for India. Notable among them are Husain (1967), Gounden (1967), Blaug (1972),Tilak (1987) and Kingdon (1999). It is normally believed that labour market returns to education are highest for the primary level of education and lower for subsequent levels. Their estimates of the private returns to education range from –3.1 to 33% across different levels.

In general, returns to education are higher for lower levels of education (e.g., primary) and decline with the level of education. This is due to the low cost of primary education relative to other levels of education and considerable productivity differential between primary graduates and illiterate persons. Also, primary education provides the basis for further education. Social returns to education are lower than private returns because education is publicly subsidized in most countries and also due to the fact that estimates of social returns are not able to include social benefits of education. The rates of return to education vary significantly from country to country and also within a country over time.

In Assam, not much study has been done on the private rate of returns to education. Generally, whatever studies have been made in Assam relates to the wage earners and salaried workers. The self-employed, which form the largest component of the workforce, have so far been neglected. Given these circumstances, it becomes imperative to investigate into the returns that accrue to self employed individuals in the informal sector of Assam. Therefore, this paper makes an attempt to estimate the private rate of returns to education for the self employed workers in the urban informal sector of Guwahati City.

OBJECTIVES OF THE STUDY

The main objective of the study is to examine the role of human capital on worker's earnings.

METHODOLOGY

The study is mainly based on primary data collected from the self employed workers in the urban informal sector of Guwahati City through a structured questionnaire cum schedule during the period from March to December, 2015. Multi-stage sampling has been followed to collect primary data. For collecting primary data, the entire Guwahati city which is composed of 60 blocks has been initially broken up into five zones according to population size. Then from each zone, the samples were drawn according to proportional allocation.

Sample Size: According to Krejcie and Morgan (1970), research activities require an efficient method of determining the sample size that would be representative of the given population. They reiterate that as population increases, the sample size should increase at a diminishing rate and according to their calculation should be stabilized at slightly around 384 cases. The Research Advisor (2006), also maintain that for a population of 1, 00,000 and above, at 5% confidence interval and 95% confidence level, the sample size required is 384.According to a study made by Chakraborty and Barua (2008), there were 2, 32,746 lakh informal sector workers in Guwahati during the year 2001.Another study by J.Saikia (2009) has estimated informal sector workers to be at 1, 71,682 in Guwahati. Since the informal sector workers is more than one lakh, therefore according to Krejcie and Morgan's formula, the sample size has been fixed at 384.Guwahati's economy is mainly based on the tertiary sector and therefore self-employed workers belonging to retail trade sector , service providers and street traders and vendors have been chosen for this study.

ANALYSIS AND DISCUSSION

This section examines the relationship between education and earnings by using the earning function approach. A standard earnings function popularized by Mincer (1974) has been used to investigate the determinants of labour earnings. The earning function may be specified as:

$$Ln\ Y = a + b_1 S + b_2\ Exp + b_3\ Exp^2 + b_4 G + u$$

Where, a is constant, and b_1, b_2, b_3, and b_4, are the regression coefficients;

Y is natural log of income of self-employed workers; the monthly income of the workers is taken into account

S is number of years of schooling completed,

Exp implies years of labour market experience and calculated in terms of number of years in the present job ;

((Originally measured by Mincer as age-minus-education-minus-six)

Exp^2 is the square of the experience term. It captures the non-linear effect of experience on earnings i.e., whether earnings rise with experience at an increasing rate or decreasing rate.

G implies gender (1=female, 0=male) of the workers and

U is a random disturbance term capturing unobserved characteristics.

The above model has been adapted for this study and applied to the primary data collected from Guwahati City on earnings of self employed individuals, the total number of years of schooling undergone by them and their experience in the labour market in terms of number of years in the present job. Here, in this study b_1 indicate the returns to education.

Through the application of this model, the present study seeks to find out the effect of the years of schooling, experience, experience square and gender on the earnings of self- employed workers in the urban informal sector of Guwahati. In the model, the monthly income of the respondents has been taken as the dependent variable, while in the original model Mincer had taken hourly wages. On the other hand, years of schooling of the respondents, experience in the present job, experience square, and gender of the workers which is a dummy variable (0=male, 1=female) has been taken as the predictor variables. The information on the dependent as well as predictor variables has been collected through a pre determined questionnaire put to the respondents.

RESULTS OF REGRESSION MODEL

Box-1

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
   Ho: Constant variance
   Variables: fitted values of ln_earning
   chi2(1)   =   2.98
   Prob > chi2 = 0.0844

The p value is significant at 10 percent level of significance; therefore heteroscedasticity is present in the model which has been corrected through white standard robust test.

Variables/Constant	Estimates of the Coefficients
Years of schooling	0.0550*** (0.0072)
Gender (Female)	-0.0030 (0.1277)
Exp	0.0061 (0.0149)
Exp^2	-0.0000 (0.0005)
Constant	8.800 (.1611)
R^2	0.1377
F[4,379]	14.91***
Mean vif	4.52

Figures within ( ) and [ ] are robust standard errors and the degrees
Of freedom respectively
***, ** and * indicate significant at 1, 5 and 10 percent respectively.

Here, the data belongs to cross-section sample; therefore it is quite possible that the disturbance term may not be homoskedastic. Hence, before estimating the model, the Breusch-Pagan test has been applied to check for the presence of heteroskedasticity in the data set. The result of the test shows that the problem is present in the data at 10 percent level of significance and the problem has been corrected through the estimation of white heteroscedasticity robust standard error test. The model also does not suffer from multicollinearity problem because the mean vif (variance inflation factor) of 4.52 is well within the prescribed range.

A priori, log of income and experience is expected to be positively related to education while sex and square of experience are negatively related. All the variables in the model have the expected sign, although not all the variables are individually statistically significant. The R^2 value of about 0.1377 is low but such values are typically observed in cross-sectional data with a large number of observations. But this R^2 value is statistically significant, since the computed F value of about 14.91 is highly significant, as its p value is almost zero. (The F statistic tests the hypothesis that all the slope coefficients are simultaneously zero; that is all the explanatory values jointly have no impact on the regressand.)

The above model shows that education or years of schooling is an important variable which affects the earnings of the self employed workers in Guwahati City and it is highly significant at 1 percent level of significance. It is observed from the model that each extra year of schooling increases the earnings of the workers by .0550 or 5.50 percent. The experience variable shows that each extra years of schooling increases earnings by 0.61 percent but this variable is not significant implying that experience does not matter for the self employed workers who have low skill level. The model shows that there is difference in earnings of male and female self-employed workers but it is not significant.The earning of female self-employed workers is less than their male counterparts by 0.03 percent. The experience square variable is negative implying that earnings increase at a decreasing rate but not significant. It shows that there is a linear relationship between experience and earnings of the self-employed workers.

Thus, it is observed from the model that for the self-employed workers education or years of schooling is a significant variable which affects their earnings.

CONCLUSION

The purpose of this paper is to estimate the returns to education for the self-employed urban informal sector workers in Guwahati. The estimates of the rate of return to education and experience can be a useful indicator of the reward for education in the labor market and also a guide for public and private investment in education in India. The study of returns to education for the self-employed informal workers, in general, and by gender can serve as a guide for region specific education investment policies. The 'b' coefficient of years of schooling denotes the average private returns to education (Psacharopoulos, 1987). Therefore, the 'b' coefficient of the years of schooling in this study represents average private returns to education.

Overall, the average private rate of returns to education for the 384 sample of self-employed workers was estimated at 0.0550 implying that each additional year of schooling increases earnings by 5.50 %.Thus, years of schooling is an important variable which affects earnings while experience and experience square are not significant factors for these workers. Therefore, an important policy implication for the self-employed workers in Guwahati is that the quality and quantity of schooling should be improved by the government.

REFRENCES

1. Agarwal, T. (2011) "Returns to Education in India: Some Recent Evidence."Mumbai. Indira Gandhi Institute of Development Research. (Online)Available: http://www.igidr.ac.in/pdf/publications/WP-2011-017.pdf (Accessed on 25-9-2012).
2. Aslam, Monazza ; Kingdon ,Geeta ;De, Anuradha and Kumar Rajeev (2010) : "Economic Return to Schooling- An Analysis of India and Pakistan." RECOUP working paper- 38, Dec-2010. (Research consortium on Educational Outcomes and Poverty).
3. Becker, Gary S. (1993). "Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education." Chicago: University of Chicago Press [1st ed., 1964].
4. Baffour, P.T. " Determinants of Urban Worker Earnings in Ghana and Tanzania: The Role of Education." CREDIT Research Paper, No. 13/01, page 1-59.
5. Bennell, P. (1995). "Rates of return to education in Asia: A review of the evidence." Working Paper No. 24. Brighton: Institute of Development Studies, University of Sussex.
6. Bhandari, L. & Bordoloi, M. (2006), "Income Differentials and Returns to Education." Economic and Political Weekly September 9, 2006, 3893-3900.
7. Blaug, M. (1972), "Educated unemployment in Asia: A contrast between India and the Philippines."The Philippine Economic Journal, 11, 33–35.
8. Blaug, M., Layard, R., & Woodhall, M. (1969), "Causes of graduate unemployment in India", London: Allen Lane and Penguin Press.
9. Colclough, C., Kingdon, G. & Patrinos, H. (2009). "The Pattern of Returns to Education and its Implications", Policy Brief No. 4, Centre for Education and International Development, University of Cambridge.
10. Duraisamy, P. 2002. "Changes in Returns to Education in India, 1983–94: By Gender,Age-

Cohort and Location." *Economics of Education Review, 21:6, pp. 609-22.*

11. *Dutta, P. V. (2006). Returns to Education: New Evidence for India, 1983-1999, Education Economics, 14 (4), 431–451.*

12. *Geetha, P Rani, (2014), "Disparities in earnings and education in India",Cogent Economics & Finance 2: 941510http://dx.doi.org/10.1080/23322039.2014. 941510, P. Downloaded by [117.243.208.15] at 08:09 30 October 2015*

13. *Gounden, A. M. N. (1967), "Investment in education in India." The Journal of Human Resources, 2, 347–358. http://dx.doi.org/10.2307/144839*

14. *Husain, I. Z. (1967)., "Returns to education in India." In S. Baljit (Ed.), Education as investment. Meerut: Meenakshi Prakashan.*

15. *Kingdon, Geeta Gandhi. 1998. "Does the Labour Market Explain Lower Female Schooling in India?" Journal of Development Studies, 35:1, pp. 39-65.*

16. *Kingdon, Geeta Gandhi and Nicolas Theopold, (2006). "Do Returns to Education Matter to Schooling Participation? Evidence from India", Global Poverty Research Group Working Paper No. 52. Global Poverty Research Group.*

17. *Madheswaran, S and Paul Attewell,(2007), "Caste Discrimination in the Indian Urban Labour Market: Evidence from the National Sample Survey." Economic and Political Weekly, 42:41, pp. 4146-53.*

18. *Michaelowa, K (2000) "Returns to Education in Low Income Countries Evidence for Africa". (Online). Available:http://www1.aucegypt.edu/src/skillsdevelo pment/pdfs/ (Accessed on 21-5-2013).*

19. *Mwabu, Germano and T. Paul Schultz,(2000), "Wage Premiums for Education and Location of South African Workers, by Gender and Race." Economic Development and Cultural Change, 48:2, pp. 307-34.*

20. *Mincer, Jacob. (1974). Schooling, Experience and Earnings. New York: National Bureau of Economic Research.*

21. *Psacharopoulos, George. (1981), "Returns to Education: An Updated International Comparison." Comparative Education, 17:3, pp. 321-41.*

22. *Psacharopoulos, George (1985), "Returns to Education: A Further International Update and Implications", The Journal of Human Resources, 20:4, pp. 583-604.*

23. *Psacharopoulos, G. (1994) "Returns to Investment in Education: A Global Update."World Development 22:9, pp. 1325-1343.*

24. *Psacharopoulos, G and Patrinos , H Anthony (2004). "Returns to Investment in Education: A Further Update." Education Economics, 12:2, pp. 111-34.*

25. *Raj, R.S.N. and Duraisamy, M. (2008), "Does Schooling Affect Labour Productivity and Earnings? Evidence from the Unorganised Coir Yarn Manufacturing Sector in Kerala, India", The Indian Journal of Labour Economics, Vol.51, no.2, pp939-948.*

26. *Schultz, T. Paul and Tansel, Aysit (1997), "Wage and labor supply effects of illness in Cote d'Ivoire and Ghana: instrumental variable estimates for days disabled." Journal of Development Economics Vol. 53 (1997) 251-286.*

27. *Tsakloglou, Panos and Ioannis Cholezas (2000-01), "Private Returns to Education in Greece." Department of International and European Economic Studies, Athens University of Economics and Business.*

28. *Tilak, Jandhyala B.G. (1987), "The Economics of Inequality in Education.", New Delhi: Sage Publications.*