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2011

Online at <http://mpa.ub.uni-muenchen.de/31826/>
MPRA Paper No. 31826, posted 24. June 2011 / 20:47

IMPACT OF EDUCATION ON POVERTY REDUCTION

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ABSTRACT

Poverty is a stumbling block in the way of achieving economic development. Cognizant of the essence of Millennium Development Goals (MDGs) and 'Education for All' program, education is promulgated as the primary weapon against poverty prevalence. Hence it is important to seek out the effect of different levels of education upon poverty in Pakistan. This study evaluates the effect of different levels of education, experience and gender of the employed individuals (employers, self-employed, wage earners and unpaid family workers) as the determinants of poverty. The data for this task comes from the Household Integrated Economic Survey (HIES) for the years 1998-99 and 2001-02. A logistic regression model is estimated based on this data, with the probability of an individual being poor as the dependent variable and a set of educational levels, experience and gender as explanatory variables. It is found that experience and educational achievement is negatively related with the poverty incidence in both years. Also as we go for the higher levels of education the chances of a person being non-poor increases. Moreover, being a male person provides an advantage in retaining a position above poverty level.

Keywords: Poverty, Education, Pakistan

1. INTRODUCTION

The thought that education and human capital are essential for economic growth (and finally, for poverty reduction) gained much importance in the mid 1990s because the economic progress of East Asian countries (Singapore, Hong Kong, The Republic of Korea and Taiwan) in 1970s and 1980s was primarily due to their investment in education and human capital formation [1]. Education and poverty are inversely related. The higher the level of education of the population, lesser will be the number of poor persons because education imparts knowledge and skills which is supportive in higher wages. The direct effect of education on poverty reduction is through increasing the earnings/income or wages. The indirect effect of education on poverty is important with respect to 'human poverty' because as education improves the income, the fulfillment of basic necessities becomes easier and raises the living standard which surely means the fall in human poverty. The education indirectly helps in the fulfillment of basic needs like water and sanitation, utilization of health facilities, shelter, and it also affects the women's behavior in fertility decisions and family planning [2]. It is understood that such basic need's presence increase the productivity and wages consequently putting people

above the poverty line. The linkages between education and poverty broadly can be seen in two ways: Firstly, investment in education increases the skills and productivity of poor households. It enhances the income level as well as the overall standard of living (human development). Secondly, poverty is also a big impediment in educational attainment. Poverty affects the educational achievement in three dimensions. The very first one is from resource-side (learning and financial resources), second one is the generation of such social pressures which mutilates the mindset of poor student and lastly when poverty grabs any institution it deteriorates the teaching standards [3]. At macro level, we can generally examine that poor countries have low levels of education and at micro level children of poor families do not attend schools. In Pakistan, 6.5 million out-of-school children are present in which 80% never enrolled in the schools [4]. The reasons behind the absence of poor children in schools are economic and non-economic constraints. For example, male children are considered as source of income in the form of child labor; girls are generally supportive to mothers in household work and in caring younger brothers and sisters. Moreover, some useless social norms and so-called religious doctrine ardently restrain girl's education. Hence the lack of education is a cause of low earning potential of any person and poverty persists in even next generations of that household. Pakistan is second among the world countries with highest number of children out of schools and it is because of severe poverty in Pakistan where more than 60 percent of the population lives on \$2 a day. It is noteworthy that the 'education poverty' (lack of education) and 'income poverty' have a mutually reinforcing relationship with each other both at macro and micro levels. Lack of education is a key factor of income poverty and absence of sufficient income/earnings can't overcome the education poverty [5]. Moreover, education helps in the fulfillment of basic needs (eradicating poverty) and basic needs themselves include the education availability, hence provision of education and fulfillment of basic needs both reinforce each other [6]. The inverse relationship between education and poverty has been recognized but there is a debate relating to the educational levels; whether primary education is enough for the ultimate outcomes or all educational levels (primary, secondary and higher education) have to be focused simultaneously. Even the Millennium Development Goals (MDGs) of the United Nations and the Poverty Reduction Strategy Papers (PRSP) recommended by the World Bank focuses primarily upon the primary education and girls' education [5]. In developing countries the social returns of primary education are much higher as compared to that of tertiary education and most of the time the relatively rich people continue their tertiary education, expanding tertiary education is twenty to fifty times costly as compared with the primary education expansion [7]. Therefore, governments in developing economies want to reduce poverty in the cheapest manner and that's why primary education is focused [8].

This study finds out the effect of different levels of education on poverty. In order to find out this impact the study used logistic regression with the probability of being poor on different levels of education and experience. On the basis of lowest income quintiles we construct a variable "probability of being poor". This is a dummy variable having values zero and one. If a person is in the lowest quintile then he/she is considered as poor and he/she could be assigned value equal to one and if person is in other quintiles then he/she will be considered as non-poor and will be assigned it value equal to zero. The present study uses the data of the HIES for the years 1998-99 and 2001-02 to find out the

effect of education upon poverty. The study is organized in the following manner: section 2 outlines the model for empirical estimation and describes data. Section 3 is results and discussion and the last section concludes the study.

2. REVIEW OF LITERATURE

Education and health endowments of the individuals are the necessary and important components of human capital which make them productive and raise their standard of living. Human capital is required for the effective utilization of physical and natural capitals, and technology and skills. Being a developing country Pakistan has owned the poverty reduction strategy paper, which is one of the main pillars of human capital. Without human capital formulation the goal of development or poverty elimination is inevitable and human capital accumulation is largely based upon education and skills attainment [9].

The other notable thing regarding the education's significant role in poverty reduction is the direct linear relationship between education and earnings. In Pakistan, it has been found that monthly earnings of an individual worker increased by 7.3 percent with an additional year of schooling. Earnings will be increased by 37 percent with the attainment of ten years of schooling against no education. Moreover, each additional year of schooling level increased earnings by 3 percent at primary level, by 5 percent at secondary level, and by 7.1 to 8.2 percent at higher/tertiary level. Each additional year of technical training increased earnings by 2.5 percent. Therefore, it is quite evident that education can increase the earning potential of the poor and they become productive [10]. The educational attainment of household head is the critical determinant of household poverty in Pakistan. An increase in the educational level of the head of the household significantly reduces the chances of the household being poor [11]. Moreover, an increase in the schooling of household heads not only has a positive impact on their productivity and earnings but also enhance the productivity of other members of the household perhaps through persuading them to be educated and/or skill-oriented [12].

Not only poverty is concentrated in households with illiterate/less educated heads but also it is much harmful for the female-headed households as compared to the male-headed ones. Female segment of our society is comparatively much deprived as compared to male one. On the other side, those female-headed poor households severely lack the basic requirements of life. Their housing, health, drinking water, sanitation facilities and garbage collection system all are in deplorable condition. All these things affect the productivity of poor persons and they can not come out of their vicious poverty circles. The provision of education can break this circle through giving a rise in earnings and fulfilling basic needs [13]. A large portion of Pakistan's population is dwelling in rural areas hence we must see the effect of education upon their productivity. In rural areas private returns to male education have an upward trend due to higher levels of education in labor markets for non-agricultural work. Wages to the farm-workers, who hired for the unskilled, manual work on the farm, are not responsive to education attainment [14]. Wages and productivity in non-farm activities rise with education at an increasing rate as education rises. On the other hand the farm productivity responds significantly only to the primary education [15].

Examining separately the rural and urban sections of Pakistan, it has been observed that in urban areas the education of the head of the household is negatively and dependency ratio is positively related with the poverty status of the household. In rural areas asset distribution especially land and livestock play an important role in differing poor and non-poor. The role of domestic and overseas transfers also appeared significant against poverty and its role is much more effective in urban areas [16]. Educational levels (primary, secondary and tertiary) are valuable in increasing the per capita expenditure of the household. As expenditures include the non-food items hence again education is relevant from the overall welfare point of view. Further, educational levels are significant elements in reducing the chances of the household to be poor [17]. It would be wrong to say that for growth, development and poverty reduction we should wait for the universalizing of primary education rather we should work upon the post-primary education because it has the same role as primary education. Primary education is the initial threshold of human capital but secondary and higher education, and investment in science and technology will give rise to acceleration and sustenance in economic growth and development. In India the analysis suggest that illiteracy, literacy and primary education are positively related with the poverty ratios on the other hand middle and secondary education are negatively related. Moreover, in the simple regression secondary and higher education is inversely related with poverty, therefore secondary and higher education is important in the inverse relation of education and poverty apart from primary education [5]. It has been seen that the likelihood of being poor is higher even for the lower level of education [18]. Sometimes the overall growth is more important for the welfare of poor as compared to the basic education provision hence income of poor raises one for one with average income (growth) but the primary education attainment has a very limited impact upon the income of the poor therefore they came up with the idea that growth is a prominent factor in eliminating poverty and primary education completion is not so much important. We have also such examples where education can't approve their inverse relation with poverty. The reasons are the outside factors, which affects the inverse relationship. Evaluation of those factors considering the Southern African countries in 1990s and in the beginning of 2000, showed that although the educational indicators were appreciable like out of 24 the 12 states, whose data were available, the average completion rate of primary education was 84.6% and the drop out rate for secondary education was 15.4% in the years 1997-03. Also the adult literacy rate of the southern African states was 75% in 2000 whereas the emerging economies at that time had 74% and least developing countries had 52% but such statistics give no considerable improvement in poverty reduction. Poverty remained stagnated or increased in some cases. The other indicators of human deprivation including: the drinking water, fewer than five mortality rates, infants with low birth rates per 1000 and the prevalence of HIV have shown minor progress. The glaring facts unveiled the reasons like high unemployment rates (fall of monetary returns to education), limited access to productive resources like land and capital, rising HIV/AIDS, absence of sustained growth, high population growth rates which also demand more and more human capital, lower quality standards of education, too much dependence upon the structural adjustment programs of IMF that promotes reduction of government investment upon social services and infrastructure, paved the way towards deprivation [19]. In the same direction, the failure of 1990s educational expansion to reduce poverty in Latin American countries divulges

the reasons which are as follows: firstly, the inequality of educational opportunities, which results in the benefit to only those persons who were not so much poor. Secondly, according to one estimate the evaluated educational threshold for Latin American countries is 12 years of schooling but the government only emphasize upon the primary education. Thirdly, with the educational expansion the group of persons with higher education and high earnings increases and the educational level of the large labour force segment rises also but the former effect increases inequality (that causes poverty) and the later one does not. In 1990s the former effect dramatically dominates that is why poverty persists. Education definitely promotes social cohesion which gives rise to the fall of human poverty. But if inequality is rising in the society due to the factor mentioned earlier then it will generate social differentiation and distorts the process of human poverty obliteration [20].

3. DATA AND METHDOLOGY

Household Income and Expenditure Survey (HIES) is conducted by the Federal Bureau of Statistics (FBS) that gives us the detailed information of household level in Pakistan. The data used for this study is of 1998-99 and 2001-02. It is the available gigantic and meaningful source of information of its kind that has the household level information in Pakistan. This study takes the logistic regression technique to identify the impact of education upon poverty in Pakistan. We will seek out the effect of different education levels, experience and gender upon the probability of being poor of the employed individuals. The dependent variable is dichotomous in which the value 1 for the poor individual and 0 for the non-poor individual. The very first thing is to elucidate the criteria through which we classify the employed individuals (employers, self-employed, wage earners and unpaid family workers) into poor and non-poor. In other words, we can say that how we assign value of one (poor) or zero (non-poor) to the dependent dichotomous variable. For this task, there are different approaches like the basic needs approach or the calorie-based approach; but here we classify the individuals through quintiles. We will work out four quintiles of individuals depending upon their monthly incomes. The lowest (fourth) quintile will have the individuals with the lowest monthly incomes. The individuals in the lowest quintile will be considered poor and consequently dependent variable will take value one for them whereas each individual in other three quintiles will obviously take the value zero. In explanatory variables, educational variables are dummy variables and one of them will get the value one in response to the individual's highest educational attainment. It means the educational level will either fall in middle, matriculation, intermediate, bachelors or professional (masters and above) category whereas 'primary education' will be attributed as reference category. Other variables include experience (exp) and gender. The experience variable is attained through subtracting the years of schooling and school starting age from the age of a person. It is not the actual but the potential experience. The personal characteristics include gender (male=1, female=0) where female will be the reference category.

The results will not be interpreted through the coefficients but we will use the odd ratios in logistic regression to see that the occurrence of any particular event will increase or decrease the probability of being poor and with what proportion as compared to the reference category. The odd ratios were defined as just two odds that are compared to

determine whether one group has higher or lower odd ratios of binary outcome. A number, greater than one indicates a positive association between an independent variable and the dependent variable. While a number between zero and one indicates a negative association.

4. RESULTS AND DISCUSSION

A logistic regression model was estimated for 'probability of being poor' on experience and different levels of education. The overall results are demonstrated in Table 1 whereas the separate gender level results are described in Table 2 and Table 3. The overall results of 1998-99 and 2001-02 (Table 1) are showing that the odd ratios of all variables are less than zero that puts all the educational levels, experience and gender in negative relation with the poverty status of the employed persons. The middle, matriculation (matric), intermediate (inter), bachelors (bach) and professional (prof) variables are decreasing the probability of being poor of employed persons by 57.5%, 79.7%, 89.2%, 96.6% and 99.4% respectively as compared to the reference category of 'primary education' for the year 1998-99. Again for the year 2001-02 in the same sequence the educational levels are reducing the likelihood being poor of individuals by 54.8%, 78.5%, 88.9%, 97% and 99.1% as compared to the same reference category. The yearly comparison of these educational qualifications is vividly demonstrating that for lower levels of education, the negative effect of education upon poverty remains intact but its intensity declines.

The estimates of both years separately proved the fact that as the educational attainment improves the proportional decline in the probability of being poor increases in figure. Coming towards the experience-side, here we also see the negative coefficient sign and with the increase of one year in experience we observe decline of 4.5% in the likelihood of being poor of individuals for the year 1998-99 and 5% for the year 2001-02. It is quite evident that effect is minor but the improvement is there. On the gender side, our result is in favor of the widely prevalent concept of gender bias because being a male person reduces the chances of being poor by 93.7% as compared to the reference category of female and the figure rises to 94.6% in 2001-02.

In the separate gender estimates in Table 2 and Table 3, we explore the patterns which are in line with the overall interpreted results explained above. For both male and female regressions, we see that experience and all educational levels are negatively related with the poverty status of the employed persons. Moreover, as the acquisition of education increases the proportional decline in the probability of being poor consistently increases. However, the experience of male persons appears increasingly much beneficial in 2001-02 as compared with 1998-99 as the proportional figure goes from 4.7% to 5.6% but we do not observe such increasing trend for the females. In Table 2 (Male), we see that bachelors level shown improvement as the proportional decline in probability of being poor goes from 95% to 96.1% whereas middle, intermediate, professional give downward trend and the effect of matriculation is same for the two years. In table 3 (female), more or less all educational levels do not ameliorate. Generally, the results depict that there was a negative relationship between probability of being poor and different level of education. It means that higher levels of education reduce the probability of being poor

gradually. Hence education level has an important standing in reducing poverty in the country.

5. CONCLUSION

This study is done to estimate the effect of education upon poverty in Pakistan. The data used for this task is taken from the Household Integrated Economic Survey (HIES 1998-99 and HIES 2001-02) conducted by the Federal Bureau of Statistics. The results of the logistic regression are in accordance with the generally accepted theory that educational attainment is a critical determinant of the incidence of poverty and should be considered primarily in implementing poverty alleviation programmes. The results have shown that education attainment has a negative impact upon poverty. The other notable thing is the consistent increase in the chances of escaping poverty of a person as we increase the educational level it means that as educational achievement increases, the likelihood of a person to be poor declines. Therefore, education is the most important factor regarding poverty reduction. The attainment of education enhances the earning potential of individuals and consequently, the increased earnings will definitely help them to be out of poverty. Education is negatively linked with the poverty status and higher levels of education will be more and more effective in poverty reduction. Experience has also a negative relation with the poverty status because obviously as the experience grows a person's expertise in particular field enhances which provides him an opportunity to earn higher. It can be taken as the improvement in expertise and skill enhancement, which have positive implications in case of poverty elimination. The 'feminization of poverty' means women are much more deprived and facing severe hardships in pulling themselves out of poverty as compared to men due to their unequal educational and employment opportunities. The current study concludes that a male person reduces the risk of poverty as compared to the female and the separate female results do not give us an impressive situation therefore there is a need to take an evasive action to provide a congenial employment environment for the female along with equal educational opportunities because they are almost half segment of our society and their well being will definitely help us in eradicating poverty.

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APPENDIX

Table 1: Logistic Regression Model of being poor with multiple independent variables (overall).

Variables	1998-99		2001-02	
	β^*	Odd-Ratios	β^*	Odd-Ratios
exp	-0.047	0.955	-0.051	0.950
middle	-0.856	0.425	-0.794	0.452
matric	-1.596	0.203	-1.535	0.215
inter	-2.225	0.108	-2.200	0.111
bach	-3.380	0.034	-3.505	0.030
prof	-5.116	0.006	-4.699	0.009
male	-2.771	0.063	-2.923	0.054
Constant	3.866	47.746	2.918	18.509

* All coefficients appeared significant in the Wald test.
Dependent variable: probability of being poor

Table 2: Logistic Regression Model of being poor with multiple independent variables (Male).

Variables	1998-99		2001-02	
	β^*	Odd-	β^*	Odd-Ratios
exp	-0.049	0.953	-0.058	0.944
middle	-0.848	0.428	-0.815	0.443
matric	-1.478	0.228	-1.478	0.228
inter	-1.974	0.139	-1.946	0.143
bach	-2.997	0.050	-3.232	0.039
prof	-4.283	0.014	-3.870	0.021

Constant	1.117	3.055	0.132	1.141
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*All coefficients appeared significant in the Wald test.
 Dependent variable: probability of being poor

Table 3: Logistic Regression Model of being poor with multiple independent variables (Female).

Variables	1998-99		2001-02	
	β^*	Odd-Ratios	β^*	Odd-Ratios
exp	-0.038	0.963	-0.031	0.970
middle	-1.036	0.355	-0.812	0.444
matric	-3.337	0.036	-1.769	0.171
inter	-3.818	0.022	-2.459	0.086
bach	-4.506	0.011	-3.323	0.036
prof	-6.309	0.002	-4.928	0.007
Constant	4.251	70.166	2.352	10.508

*All coefficients appeared significant in the Wald test.
 Dependent variable: probability of being poor