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Challenging Illiteracy: A Human Capital Approach

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Abstract: *The performance of the Punjab Province of Pakistan in girls' literacy has been like a leader in Pakistan. But inside Punjab Rawalpindi Division is an example for others. This study analyzes the factors behind this high performance. Personal, inside family and outside family factors have been focused on. The findings show that, amongst the personal factors, elderly people are less literate. Amongst the outside factors, the urban/rural categorization plays an important role, but quite interestingly the rural literacy rate is higher. Out of inside family factors, the unmarried girls, than boys, influence literacy. The 'Income of the household' factor has been non-influential on literacy. The presence of working individuals negatively influences household literacy. The family size is negatively related to literacy rate. A literate household head has a positive effect on literacy of his/her family.*

Key Words: Girl's literacy, Pakistan, Family and outside Family Factors, The Rural Literacy, Income of the household

Introduction

In a study by Livingstone (2018), the nature of the relationship between work-related knowledge and the usage of that knowledge was looked for. It was shown that usually, the job-related knowledge is much more than that was required for the job. The field of literacy is known to the human being for centuries ago, but it's an important role in the socio-economic and political uplift, and development is not very old. It was during the period of 1960s to 1980s that the countries started realizing its importance (Abadzi, 2003). It has, now, been internationally recognized that illiteracies are not correlated to any nation or geographical area. The number of illiterates runs in billions; over seventy percent of which are living in nine developing countries. These countries include Pakistan amongst Bangladesh, Egypt, China, Indonesia, Nigeria, Mexico and India (Abadzi, 2003).

Lee (2016), studied the relationship between the age of an institution and its average educational attainment. He came with a remarkable relation between these two variables. This study spreads over 111 countries. In this study, the factors of enrollment ratios, behavioral changes, Human capital and educational attainment, disintegrated by the age group and gender, were considered. The utilization of available stock of human capital has shown improvement over the time resulting in the narrowing down of the difference in average educational attainment amongst the studied countries. The study shows that by the use of the stock of human capital, the average difference in the educational attainment of the countries has been reduced.

It is in recent years that the rich and the economically developed economies have taken it as an issue and started placing literacy high on their priorities. The United Nation Organization (UNO) after realization of the gravity of this issue put it in its charter. Now there have been, at the international level, debates and discussions be researchers and scholars on the issues of illiteracy. Lusardi and Mitchell (2014) have shown that by indigenizing knowledge, the literacy is increased and the welfare is enhanced, though a high cost is involved in this process.

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Researchers have tried to look into the nature and causes of the issue in different nations. Hiebert and Adams (1987) have looked into fathers' responses and print awareness of children; he showed that young children got motivated in print awareness by father response. Holmes focused on availability and quality of the school, the family background and personal characteristics of the individual, Migration and local labor market opportunities, (Holms, Jessica, 1999). In a study, carried out by Wigfield and Asher (1984), it is concluded that parents' expectations and attitude towards the performance of their children are robust in determining the attitude of the children toward learning, their effort for learning and performance in school. Precisely, the determinants can be grouped as individual or personal, inside the home (Sarachoa, 1997), and, outside the home (Shiel, 2007).

Amongst the four provinces of Pakistan, the province of Punjab is in the leading position in the field of literacy. Administratively the province of Punjab comprises of nine units/divisions with Rawalpindi one of them. This Division is leading all other divisions, in the field of literacy, with a rate of eighty-five percent. Here the Rawalpindi division is taken for study to find factors behind its high performance in the field of literacy. The spectrum of the factors can be grouped into three categories viz. Individual or Personal factors, inside-family/household factors and outside-family/household factors. In the category of the Personal factors Gender and Age of the individual have been taken up. In order to see the role of inside-family factors the following have considered: the size of Income the family, educational attainment level of family's Head, the profession of the family/ household Head, the family size (or the total number of individuals in the household), count of on job/earning hands in the family, count of unmarried boys with age from 15 to 45 years and count of unmarried girls with age from 15 to 45 years. The outside-family category comprises of two areas, in which the household is residing, viz: rural Areas and Urban Area.

In this study 'Literacy' is taken as a dependent variable. This variable being dichotomous in its very nature, invited the Probit Model for data analysis.

Theoretical Frame-Work

Here we have used the model of the Human Capital Theory. This model considers education and experience as a source of knowledge and skills and, also, that education is an investment in human capital. The researches in the field of human capital describe that the factors like personal qualities, the structure of family and the society exert their influence on the investment decision, and this relation is expressed as:

$$Ed_i = Ed(It_i, Hh_i, Ct_i) \text{ .....(1)}$$

In the equation (1) the dependent variable (Ed_i) is the education of the i^{th} individual, and It_i is a vector of personal or individual variables such as gender, age and the level of education. Hh_i describes a vector of inside family factors/variables, and it includes family size, the family Income, etc. and Ct_i describes a vector of outside family variables, like rural or Urban area.

Keeping forth the model mentioned in equation (1), this study developed the following model:

$$Lt_i = Lt(It_i, Hh_i, Ct_i) \text{ .....(2)}$$

With the only difference of the dependent variable, the equation (2) is similar to equation (1). Econometrically, the general functional form of the equation (2) is as under:

$$L_i = L(Ag, Gn, Yh , Lb , Gr , By , Eh , Sh, Rn) \text{ ..... (3)}$$

Here L_i , the regressand, being dichotomous variable has only two values; its value is 1 for literate individual and 0 otherwise. The other dichotomous variable in the equation is on the right-hand side, as a regressor, Rn; it represents the rural/urban area, with the value of 1 for rural and 0 for urban. The third, and the last, dichotomous variable is the gender (Gn); its value is 1 for male 0 for female. All other variables are continuous ones. Ag is for the age of an individual, Yh for Income of the Head of the family, Lb for the number of on job members of the family, Gr is the number of girls who are literate but unmarried with age between 15 to 45 years. By is ~~the~~ number of boys who are literate but unmarried with age between 15 to 45 years, Eh is the level of educational attainment of the Head of family and Sh is the size of family/household.

The hypothesized relationship between the dependent variable and age (Ag) is a negative one. Its means while moving from the lower age group to the higher one the probability of finding a literate decrease. It is because as we move backwards on the time scale, there were lesser educational facilities available to the population. The older a person is lesser probable to be a literate one.

A strong relationship with a dependent variable with a positive sign is expected for gender (Gn) variable as we move from lower to the higher value of the variable the probability of finding literate increases. It means that we may expect more of male literates than female literates in the population.

For Yh variable, the relation with regressand is expected to be positive across all the income groups. It is because a higher level of Income means better economic and financial conditions and more ability to meet the educational expenditures of the family; therefore, it is more probable to find literate in higher income levels.

For Lb variable, the relation with regressand is expected to be negative. Poorer families get involved in income generation process at an early age. Pakistan, and particularly Punjab, being labor intensive agrarian economy with no fixed wage has more of unskilled labor. As the unskilled labor is paid less so more of the family members are involved for income generation and pay less attention to literacy.

A strong relationship with a positive sign is expected between the dependent variable and Gr variable. It is because there is mostly a joint family system and the presence of literate unmarried girls assist in the literacy attaining process of other household members.

There is expected to be a strong and positive relationship between literacy and By variable. The reasons for this nature of the relationship may not be the same as that are for Gr variable. Here the local and overseas migration option more favorable and family supported for male than female plays a role.

The nature of the relation between the dependent variable and the educational position of the family head variable (Eh) is expected to be direct. The family head, being the decision-maker of the family, if literate, may support the literacy acquiring process in the family, thus, a higher probability of finding literate.

The variable for size of the household/family (Sh) may exert a negative influence on the literacy of the family. Keeping forth the fact of low per capita income at the national level and polarized income distribution, the large size family finds less or no recourses for literacy. Secondly, large size families are more frequent in the agricultural sector, where there are seasonal jobs and no fixed wage, larger families find it hard to make both ends meet.

The relational sign between the depended variable and area variable (Rn) is expected to be negative, primarily, for the technical reason that we 0 for illiterate and 0 for urban area and 1 for literate and 1 for the urban area; therefore, as we urban area to rural area the probability of finding literate decreases and vice versa. Another way to interpret this finding may be that the probability for a person, who moves from urban into rural areas, to become literate may be decreased. Evidently, the reason for this finding is the existence of lesser and low-quality literacy facilities in rural areas than in urban areas.

For the analysis point of view the equation (3) is run the following form:

$$\text{Literate} = \beta_0 + \beta_1 Rn + \beta_2 Gn + \beta_3 Ag + \beta_4 Yh + \beta_5 Lb + \beta_6 Gr + \beta_7 By + \beta_8 Eh + \beta_9 FS + \text{Error} \quad \ldots\ldots(4)$$

β_i written before variable are the coefficients of the variables.

Results of Estimates and Discussions

Table 1, displays the estimates of the equation (4). The column 'Variable' of Table 1 lists the explanatory variables. The column 'dF/dx' of the Table shows the respective coefficients of the independent variables. We base the analysis and discussion on the size and the sign of these coefficients. In our study, they show, iff the given variable is continuous, and all other variables are kept constant at their mean value, the value of change in the predicted probability if that variable is changed by one unit. The column 'Z' displays the values of the standardized coefficients. Under 'P>|z|' column is shown the 'z' test statistic's observance probability under the null hypothesis that ~~a~~ the regression coefficient is ineffective, with the condition that the remaining coefficients are constant at their mean value.

In this study, the chosen level of alpha is 0.05. It implies that if the observed value is less than 0.05, then the estimated parameter is statistically significant.

Table 1. Determinants of illiteracy

Variable	dF/dx	z	P>|z|
Rn	-0.0292	-3.44	<0.001
Gn	0.1431	15.78	<0.001
Ag	-0.0100	-36.85	<0.001
Yh	0.0386	10.01	<0.001
Lb	-0.0237	-5.02	<0.001
Gr	0.0310	7.19	<0.001
By	0.0042	0.97	0.331
Eh	0.0228	21.67	<0.001
Sh	-0.0050	-3.15	0.002
Observed P	0.7744	Predicted P	0.8526
Pseudo R^2	0.0000	Prob.> Chi^2	99.99

Our study is, statistically, quite significant. The statistical significance of our model is 99.99 percent. The value for predicted probability (Predicted P) is 0.8526. This value, here, is interpreted as the conditional literacy rate of Rawalpindi division, and it comes out to be 85.26 percent, given the estimated mean values of all other independent variables of the model. The Observed P gives unconditional literacy rate, which is 77.44 percent.

All the regressors have the expected signs. Therefore, all our hypotheses are true. The Rn Variable is having a coefficient of -0.029. It means, in a rural area, the predicted probability of finding a literate, on average, gets reduced by 2.9 percent, *ceteris paribus*.

The Gn variable is having a coefficient of 0.1431. It means the predicted probability of finding a male, against a female literate, is more by 14.31 percent, *ceteris paribus*.

The Ag Variable is having a coefficient of -0.010; it means, *ceteris paribus*, for one year increase in age the predicted probability, the chance of being literate is decreased by one percent.

The Yh Variable is having a coefficient of 0.0386; it means, *ceteris paribus*, for one unit (in this study one unit of Income is equal to ten thousand) increase in the Income of the household head the predicted probability for literate gets increased by 3.86 percent.

The Lb Variable is having a coefficient of -0.0236; it means, *ceteris paribus*, for an addition of one working individual in family the predicted probability for literate is reduced by 2.36 percent.

The Gr Variable is having a coefficient of 0.031; it means, *ceteris paribus*, for an addition of one described girl in the family the predicted probability for literate is increased by 3.1 percent.

The By Variable is having a coefficient of 0.0042; it means, *ceteris paribus*, for an addition of one described boy in family, the predicted probability for literate is increased by 0.42 percent.

The Eh Variable is having a coefficient of 0.0228; it means, *ceteris paribus*, for an addition of one unit in the education level (here levels are: no education, primary, elementary, secondary, higher secondary / college, graduation and beyond graduation) of the household head of the family the predicted probability for literate is increased by 2.28 percent.

The Sh Variable is having a coefficient of -0.00497; it means, *ceteris paribus*, for an addition of one individual in family the predicted probability for literate is reduced by 4.98 percent.

Conclusion and Recommendations

The literacy rate is considered to an important indicator in gauging the social, economic and political developmental stage of a country. It is beyond any doubt that the government of Pakistan is endeavoring for the highest possible literacy rate within resources with its own motivation and under the

international obligation. The political will of all its provinces is not the same. And, then, within the province, the performance of administrative divisions is not the same.

This study tried to point out some of the possible factors which influence the literacy rate so that the authorities concerned may provoke them for positive outcomes. Our all hypotheses are found true. The literacy rate is lower in rural area than in urban areas; Literacy rate of boys is higher than of girls; the older population is less literate than, the younger one; the family heads with higher Income care more of family literacy than those with lesser Income; the presence of literate girls in a family is more contributive in the family literacy than that of literate boys; a literate family head contributes in the literacy of the family more than an illiterate family head; and, as family size increases the literacy of that family members is compromised.

The following are the suggestion:

1. The difference in rural and urban living standard is a big check on the development of the area. Due to the availability of better life facilities in urban areas, people tend to converge to them, which bring these facilities under pressure and negatively affect their performance. Establishment of schools in rural areas is a solution to them.
2. Gender disparities are next on the list. Girls are discouraged for education, not to speak of higher education. An increase in the educational institutions, primary to post-graduation, for girls may dilute the situation.
3. Age and literacy are positively and strongly correlated. If an individual gets in educational institution, then the chance is that there will be a long journey. But once detracted, it is difficult to keep on the path. The Universal Primary Education (UPE) and Universal Secondary Education (USE) programs are on the way since long, but a special and concerted effort is needed to effectively implement these programs for meaningful results
4. The working individuals with low wages push the school going children into the labor force. If the wages are fixed at a reasonable level, it may provide to meet the basic needs of the family. It also requires the effective implementation of labor laws, child labor law and compulsory education act.
5. The presence of educated girls is more effective in increasing literacy than the boy. So girls education to higher levels may trigger a rapid literacy change.
6. Size of the family is negatively affecting literacy. People need a large family for more earners in the family. People need to be informed that the illiterate labor force is rarely a source of prosperity. The government needs to run programs for such awareness.

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