ANALYZING THE DETERMINANTS OF HOUSEHOLD HUMAN CAPITAL INVESTMENT BEHAVIOR IN THE RURAL AREAS OF PAKISTAN (A CASE STUDY OF DISTRICT SWABI)

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ABSTRACT

The importance of human capital investment in attracting physical capital cannot be denied by any country while making their policies. Evidently, many nations have accomplished their present state of development by profoundly investing in their human capital.This research paper elucidates the factors that are active in bringing changes in household behavior regarding investment in human capital, which ultimately leads to sustainable economic growth. This is the first study of its kind about the rural areas of Pakistan in the sense that it has incorporated all the three components of human capital investment viz, education, health and nutrition. To achieve the objectives of the research three rural areas of district Swabi has been taken and data has been collected by taking a sample of a total of 250 respondents. A questionnaire is distributed and data is collected and then analyzed using regression analysis. Six variables are selected for analysis. This research through multivariate analysis establishes the positive relationship between behavioral and socio-economic factors of household. It also indicates negative relationship between household behavior and prices of goods and services. Proper infrastructure and availability of required goods and services has a profound effect on the behavioral competencies towards human Capital Investment.

1. INTRODUCTION

Investment in human resources unequivocally constitutes the ultimate basis for the wealth of the nations. Capital and natural resources are passive factors of production; human beings are the active agents who accumulate capital, exploit natural resources, built social, political and economic organizations, and carry forward national development (Romer 1986). Conspicuously, a country, which is unable to develop the skills and knowledge of its people and to utilize them effectively in the national economy, will be unable to develop any thing else. The statistics and numerous quantitative studies of the sources of economic growth in the west were paraded to demonstrate that it was not the growth in physical capital but rather of human capital, that was the principle source of economic progress in the developed nations (Qaiser 2000).

There are two types of investment in the human capital. One is public investment i.e. investment by government and the related institutions on health and education. The other is the household investment i.e. investment or the expenditure of the household on education, health, and nutrition. The proximate demand of these human development products by the household however depends on host of factors.

Scanty quantitative work has been done in this regard in the past in Pakistan especially in NWFP. A few studies (such as Romer 1986, Lucas 1976, Schultz 1961) that have attempted the quantification of some relevant behavioral relationship have for the most part, been confined to estimating simple two variable relationships between human capital investment and income. A major reason for this appears to be the lack of proper data on the human capital investment in the country.

Present study is an attempt to find out factors determining the household human capital investment decision by reckoning it's all the three components viz education, health and nutrition whereas, prior studies considered only some facet of human development investment.

A framework for analyzing the relationship is developed (see section 4.2) to examine the household decision of district Swabi. The hypothesis of the study is that household income, family educational background, quality and the supply of the goods and services related to human capital investment and expected rates of return have positive impact while prices of the goods and services related to human capital investment affects negatively the household behavior for human capital investment. The outcome of the study will provide a breading ground for further investigation in this field by the researchers and policy makers.

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2. AREA PROFILE

District Swabi was set up on July 1 1988, prior to this it was a tehsil of district Mardan. The total area of the district is 1543 square kilometer. It is bounded on the north by district Buner on the east by district Haripur, on the south by district Attock of Punjab province and on the west by Nowshera and Mardan district. The entire area is fertile and produces good crops; however, most of the cultivated area is rainfed despite a very good irrigation system of canals in different part of Swabi. The total population of the district is 1026804 with an inter-censal percentage increase of 64.3 since March 1981. The average annual growth rate was 3.0 percent during this period. The urban population is 17.5 percent of the total population. Literacy rate of the area was thirty six percent in 1998, whereas the male literacy rate was fifty four percent as against 18.3 percent of female literacy ratio. The district has three hospitals, forty-one basic health units, eight dispensaries, two rural health centers and three mother health child centers (National Census Report 1998).

3. LITERATURE REVIEW

Human capital investment has been considered critical in attaining development goals such as growth, structural change, and lessening of poverty. Recently, the importance of human capital investment in attaining these goals has been emphasized strongly in policy related perspectives on economic development such as the World Bank and UNESCO (World Bank, 1990-91 and UNESCO, 1990), and in the more academic perspective of the so-called "New Neoclassical Economic Growth Models" According to Romer (1986), "The evidence is quite strong of close link between investments in human capital and economic growth". Since human capital embodied knowledge and skills, and economic development depends on advances in technological and scientific knowledge, development presumably depends on the accumulation of human capital. Schultz (1961) noted that the growth rate of output exceeded the growth rate of relevant input measures (employment and physical capital) suggesting that investment in human capital is probably the major explanation for this difference.

Uzama (1965) & Rosen (1976) have established strong correlation between the human capital and economic growth. Recent models of economic growth, such as Romer (1986) and Beharman (1987) emphasized that investment in human capital is an important factor contributing to economic growth. Human capital may act as engine by attracting factors such as physical investment, which also contribute measurably to per capita income growth.

Phelps & Nelson (1966) noted that the ability of nation to adopt human investment and implement new technology from abroad is a function of its domestic human capital stock.

However, domestic sources of investment in human capital arrive from two channels viz government and households.

Siddiqui et al (1995) while analyzed a cross-country data to find out the determinants of the expenditure on health and health related services in Pakistan by the households found that the level of income and expected returns from investment on health were the most dominant factors effecting the household behavior of spending on health.

Qaisar (2000) conducted a comparative study of Pakistan and India to analyze the household investment behavior in the human capital. He associated household human capital investment behavior to level of income, family educational background, expected returns and price of the goods and services to the human capital investment.

4. RESEARCH METHOD

The primary objective of the study is to analyze the household behavior regarding their investment decision in human capital using district Swabi as a case study. The method employed for analyzing the problem is stated as under.

4.1 Sampling & Data Collection

Three areas Permoli, Ghulaman and Sher Dara, which represent rural areas of the district Swabi and constitute Union Council Permoli, were selected for data collection. However, important reasons for selecting these areas are that accessibility to these areas is easy, and people living in these areas belong to different income groups. As a sample size, about two hundred and fifty households were interviewed for the data collection, one hundred each from Permoli and Ghulaman, and fifty from Sher Dara. The respondents were selected using systematic sampling. Many other researchers have also employed this type of sampling strategy.

Primary data was collected from the respondents/households through a structured questionnaire that covered all the relevant aspect such as their income, household head's (income, education, employment status and earning status), household size and structure, number of secondary earners, and household monthly expenditure on schooling and health.

4.2 Analytical Technique

Present study has made use of Multivariate regression analysis. Some of the other studies like Behrman, Schneider (1993) and Siddiqui (1995) have used the same method to analyze the behavior of the household for spending on health and education. However, the variable in these studies have been different. For example, Behrman and Schneider (1993) have used household level of income, prices, quality of goods and services related to human capital investment, family educational background and the expected rates of re-

turns from such investments. They estimated the model for taking the data for Pakistan. Siddiqui (1995) has taken the socio-economic determinants for the health related expenditure like the level of income, education, and urbanization for Pakistan. However, in this study, household level of income, family educational background, expected rates of return, prices, quality and the availability of goods and services related to human capital investment were taken as explanatory variables.

Theoretically, the behavior of the household to invest in human capital is positively related to the household level of income, family educational background, easy availability and quality of goods and services related to human capital investment and the expected rate of return from human capital investment. Nevertheless, it is negatively related to the prices of goods and services related to Human Capital Investment.

Mathematically the model is expressed as;

$HCI = \beta_0 + \beta_1 Y \beta_2 DFB + \beta_3 P + \beta_4 DQ + \beta_5 DEE + \beta_6 DEA + \mu$

Where

HCI = Human Capital Investment in primary, secondary and higher education, investment in health and nutrition.

Total annual expenditure on these variable is taken as proxy for human capital investment

Y = Household Head Level of Income

DFB = Dummy used for family background. Its value is "1" if family is educated and "0" if otherwise.

P = Prices of goods and services related to Human Capital Investment

DQ = Dummy used for the quality of goods and services related to Human Capital Investment. Its value is "1" if having high quality and "0" if otherwise.

DRR = Dummy for Expected Rate of Return on Human Capital Investment. Its value is "1" if expected rate of return is high and "0" if otherwise.

DEA = Dummy used for the easy availability of goods and services related to Human Capital Investment. Its value is "1" if easily available and "0" if otherwise.

β_1, β_2, β_3, β_4, β_5, β_6 are the parameters showing the responsiveness of the household behavior for investing in Human Capital to level of income, family educational background, prices, quality and easy availability of goods and services related to Human Capital Investment and the expected rate of return from it, respectively.

β_0 = the Y — intercept

μ = error term

Table 1: Analysis of the Determinants of the Human Capital Investment for Permoli

Variables	Primary	Secondary	Higher	Health	Nutrition
Constant	0.732	1.297	-1.356	4.680	-3.309
Income	0.296	0.891	0.839	0.634	0.8453
	(3.391)*	(13.986)**	(16.783)***	(7.391)**	(16.379)**
Family Background	0.932 (7.864)**	0.783 (5.453)*	0.896 (8.301)**	0.390 (5.340)*	0.186 (3.421)*
Prices of related goods and services	-0.562 (3.239)*	-0.391 (1.370)*	-0.445 (3.739)*	-0.689 (13.138)***	-0.495 (4.372)*
Quality of related goods and services	0.013 (1.784)*	0.964 (3.297)*	0.930 (2.154)*	0.380 (1.296)	0.750 (7.652)**
Availability of related goods and services	1.069 (2.796)*	0.394 (5.630)*	0.016 (1.690)	0.358 (6.763)*	0.956 (1.360)
Expected Rate of Returns	0.007 (1.009)	1.670 (2.784)*	3.761 (5.794)*	0.008 (1.089)	1.140 (2.786)*
R^2	0.996	0.997	0.997	0.983	0.986
F	511.378	1012.390	1665.306	489.600	679.384
D.W	1.6	1.7	1.6	1.2	1.7

* Significance at 0.01 level of significance   ** Significance at 0.05 level of significance

*** Significance at 0.10 level of significance   Figures in parenthesis are estimated t-values

Table 2 Analysis of the Determinants of the Human Capital Investment for Ghulaman:

Variables	Primary	Secondary	Higher	Health	Nutrition
Constant	-2.370	0.964	-2.978	3.601	-5.713
Income	0.391 (14.293)*	0.528 (7.329)*	0.863 (12.109)**	0.674 (4.391)*	0.392 (2.786)*
Family Background	0.383 (1.360)*	0.601 (2.786)*	0.816 (14.394)***	0.874 (3.920)*	0.210 (7.860)*
Prices of related goods and services	-0.109 (2.369)*	-0.682 (-14.390)*	-0.745 (-3.304)*	-0.839 (4.369)*	-0.390 (2.392)*
Quality of related goods and services	0.390 (-4.360)*	-0.680 (3.901)	-0.939 (-12.346)	1.368 (2.563)*	0.018 (1.392)
Availability of related goods and services	0.688 (-6.391)*	0.390 (7.838)*	0.948 (21.309)**	0.608 (3.983)	0.012 (2.600)
Expected Rate of Returns	0.380 (2.659)*	0.567 (7.806)*	1.990 (14.391)**	0.058 (1.212)	-0.412 (3.609)
R^2	0.928	0.988	0.992	0.976	0.982
F	486.369	514.512	1213.389	786.932	450.519
D.W	1.6	1.9	1.8	1.9	1.6

* Significance at 0.01 level of significance   ** Significance at 0.05 level of significance
*** Significance at 0.10 level of significance   Figures in parenthesis are estimated t-values

Table 3 Analysis of the Determinants of the Human Capital Investment for Sher Dara

Variables	Primary	Secondary	Higher	Health	Nutrition
Constant	-3.623	4.026	2.567	-5.610	-1.832
Income	-0.201 (1.360)*	0.293 (3.213)*	0.780 (12.786)**	0.339 (3.107)*	-0.153 (1.289)*
Family Background	1.327 (1.607)*	0.456 (5.943)*	0.801 (13.339)**	0.593 (8.882)*	0.160 (2.390)*
Prices of related goods and services	-0.902 (1.206)	-0.293 (-3.951)*	-0.709 (-14.823)**	-0.586 (-8.631)*	-0.010 (0.390)
Quality of related goods and services	0.868 (2.360)*	-0.531 (1.394)	1.239 (2.838)*	0.012 (1.913)*	-0.129 (-1.268)
Availability of related goods and services	0.178 (4.358)*	0.489 (13.932)***	0.593 (6.789)**	0.394 (2.801)*	-0.068 (1.293)
Expected Rate of Returns	-0.640 (2.139)*	0.456 (5.839)**	0.809 (16.391)***	0.390 (1.350)	-0.015 (-1.860)
R2	0.982	0.990	0.996	0.983	0.980
F	584.130	767.306	1480.390	681.374	413.745
D.W	1.6	1.7	1.9	1.8	1.6

* Significance at 0.01 level of significance   ** Significance at 0.05 level of significance
*** Significance at 0.10 level of significance   Figures in parenthesis are estimated t-values

5. RESULTS

The result were obtained by running separate regression for each of the village selected for identifying variability in the data regarding factors which are responsible for changes in human behavior pertaining to investment in human capital. A cross-sectional data was used from all of the three sites of the study area. The model was estimated for all the sites and the results were tabulated.

6. DISCUSSION

The results mentioned above reveal that for village Permoli income has a very significant impact on the investment in higher education. Similarly, its impact on secondary education and health and nutrition are also significant and those who earn more spend more on their health and take care of their nutrition. In case of village Ghulaman, it is evident that families with higher income spend large part of their income on their offspring to educate them. However, at primary levels and secondary levels of education, income is responsive but not up to that extent as to higher education. The level of income effects health investment positively and significantly. While for village Sher Dara income is the main determinant of the investment in higher levels of education and health. At primary level, the effect is positive but not significant. However, in contrast to the previous corollaries income level appears to be negatively related with the nutrition investment. The reasons for this variability seem to be because (1) the people are unaware of the nutrition levels in the food; (2) high nutrient food is not available to them; and (3) they may be spending most of their income on other customs and traditions and not on food.

Family educational background has again positive impact on the behavior to invest in human capital. It is evident that educated parents are more concerned about their children health, nutrition and education. Educated families send their children to colleges and universities. However, majority send their children at least to secondary level. The educated families know better the benefits of sound health so they spend enough on health activities. Family educational background just like other two areas has a significant impact on the investment in schooling and health, nutrition for Sher Dara.

Prices of the goods and services related to human capital investment are related negatively to the human capital investment behavior for both villages Permoli and Ghulaman. That is, when the prices of the books, notebooks, medicine or food related products or school dues increases, people stop their children from going to schools and indulge them in working. The main reason for this is that the respondents belonging to this area are low-income group and they are mostly price conscious. However, small group of people who afford high prices have no concern with the prices of the goods and services related to human capital investment. However, the respondents of the village Sher Dara are price conscious and not quality conscious. There may be two reasons; (1) they belong to low income groups and cannot afford the high prices of the goods and services related to human capital investment; (2) high quality goods and services are not available to them.

For Permoli quality of the goods and services related to human capital investment effects positively the investment behavior of the households. However, in case of higher education, health, and nutrition, the quality of the goods and services has no considerable effect. This is because they cannot afford the private sector universities or hospitals but use public sector goods and services. However, at primary and secondary levels of education, quality of the goods and services related to human capital investment has significant effect. In case of Ghulaman quality of the goods and services related to human capital investment has no significant affect but though positive affect on the investment behavior. At the primary and secondary levels of education, they have no other option i.e. they have not provided any private sector school. At higher level, they cannot afford to send their children to universities with some exception. Health facilities are only available to them in the form of male medical technicians. In Sher Dara the relation is insignificant and that may be because high quality services are not available to them.

Availability of the goods and services related to human capital investment has a significant affect at the secondary level of education and health. At primary levels, the schools are easily available while at higher level they do not have any other option except one Public Sector University. For Ghulaman and Sher Dara, primary and secondary enrollments are high because they are easily available. Only few can afford to send their children far from home to universities.

Finally, the expected rates of return have positive and significant effect over the household human capital investment behavior. However, expected rates of returns are more responsive to secondary and higher levels of education levels because have greater opportunities for getting jobs. In case of Ghulaman expected rates of returns have significant effect on the secondary and higher levels of education. However, it has very little affect on the health investment. Same is the case of village Sher Dara.

The R^2, F and D.W values show the significance of the model for all the three areas.

7. CONCLUSIONS

Investment in human capital is the most important determinant of the development of a country. Evidently, many nations have accomplished their present state of development by profoundly investing in their human capital. Nevertheless, the study analyzed household decision to invest in human capital and it is concluded

that the household's behavior is positively related to the income of the respondents, the family educational background, quality and availability of the goods and services related to human capital investment and the expected rates of returns. Whilst it is inversely related to, the prices of the goods and services related to human capital investment. The sample respondents of all the three areas are concerned about secondary and higher education, but less anxious about health and nutrition. Secondary and higher schooling rates have high expected rates of returns in the form of getting high paid jobs. However, the prices and the availability of the goods and services related to human capital investment have also a significant impact on the behavior of the respondents toward human capital investment.

Present household behavior regarding human capital investment necessitates accelerating the public spending on health, nutrition and education. Beside this, the policy of creating awareness in the public about human capital investment should also be pursued. The study recommends implementing policies like food security, health insurance and free education for all. It is emphasized that government should re-evaluate their budgetary priorities and should set investment in human resource as the top priority of the country to meet the development challenges. Further developments can be made by increasing the number of variables in the model, by increasing the sample size, by conducting the same survey in other areas of the country, and even by comparing the behavior in rural and urban areas.

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