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Household Socio-Demographic Characteristics and Out of Pocket Educational Expenditure in Pakistan

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Abstract

The present study conducted to empirically investigate the role of household's socio-demographic factors in household's head decision making in case of OOP (Out of Pocket) educational expenditures in Pakistan. The unit record data from Pakistan Social and Living Standard Measurement Survey 2007-08, ROUND-IV was used for this purpose. Descriptive as well as multiple regression model was used to analyze the data. The results of the descriptive statistic revealed that the overall mean OOP educational in Punjab province was three time higher than the Baluchistan province. In case of OOP educational expenditure model, we found that all the independent variables have positive and significant impact on OOP educational expenditures. 1) The male as well as the head belong to urban areas were spending more on average as compared to female and rural household's head in Pakistan. 2) Education of head and education of spouse have also found significant positive contributors in OOP educational expenditure. 3) As expected, income and distance from home to educational institution contribute positive increases in educational expenditure as both are increases. An addition to the currently enroll students contributed positively toward the OOP educational expenditures. In policy point of prospective, the educationist policy makers make policies to financial compensate the household's side in educational expenditures on side and improve the quality of existing educational institution on other side.

Key Words: OOP (Out of Pocket) educational expenditures, household heads, Pakistan PSLM (Social and Living Standard Measurement Survey), heads education, spouse education, Pakistan

1. Introduction

Recently many social, economic and political aspects are considered to be the base of human development but the share of education is maximum among all of them. The current educational economists give top rank to the role of education when they make any future planning in case of human investment. Education; especially the basic education is considered as the cornerstone of human development on one hand and reducing poverty as well as gender inequality on other hand in less developed nations. The quantity and the quality of education have proved the welfare of individual as well as the whole nation throughout the world. After the emergence of human capital theory (Becker in 1965) in field of Economics, the whole world gives top primacy to education sector and the motive behind doing this is to enhance the earning power of young people of both genders. Recently the household sector of most of the nations has taken education as an investment in goods and to flourish this investment, the household side stipulates a huge amount of money. Basically, there are two major sources of financing educational expenditures throughout the world: the government sector and the household sector. In the case of government, the financial conditions, the value given to education and curiosity about the future generation collectively affect the decisions of policy makers related to the budget specification for education sector. While in case of household sector, although many factors contribute to household's decision making for educational expenditures, yet some are very crucial like financial status of household, future employment opportunities, location (availability of educational institution) and parents' level of understanding the importance of education. Like many other developing countries of the world, Pakistan is also facing many problems in education sector from the government side which puts pressure on families in their decision to choose how many members to be educated. The low specification of educational budget, poor implementation of educational polices, outdated educational infrastructure, low skilled or untrained teachers etc. are some of the basic reasons of low output of Pakistani educational institutions. If we take the issue of low budget for education, we find that only 1.3% of the GDP was specified for education sector for the session 2020-21, while in 2013-2018, it was 2.9% of the GDP. (Pakistan Economic Survey, 2020-21). The primary school dropout rate is 2.9% in Pakistan which is the second highest rate after Bangladesh where this rate is 33.8% according to Human Development Report, 2020 (UNDP). Although the current executive authority tried to improve the education status of Pakistan through Single Nation Curriculum (SNC) but it needs time to implement and give the desired results. Current educational system of Pakistan produces less human capital as compared to other developed nations that is why we have slow economic as well social growth. The economic growth of Pakistan is adversely affected by the low level of education (Sawada and Lokshin (2009). Low budget allocation by the government means that the households should finance their educational expenditures from their own resources in Pakistan. As the study of Khan and Ali (2003) concluded that educational demand is purely a function of households in Pakistan. Keeping in mind the financial constraint and others socio-demographic characteristics of the household's in Pakistan, it is the need of the current time to highlight that how the household should manage their resources among educational expenditures and other family needs. Further, the analysis of data at micro level and its results will expose that how much the socio-demographic factors of a household are important in decision making of educational expenditures in Pakistan. Therefore, the

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basic objective of this study is to explore the impact of socio-demographic factors of a household over educational expenditures in Pakistan.
The study is distributed among the following heads: in section 2, we will briefly discuss the view of literature with respect to educational expenditures, in section 3, analytical framework will be discussed while in section 4 and 5, we will have results of the discussion and conclusion respectively.

2. Literature Review

To keep in mind, the problems, consequences, and availability of authentic data about the educational expenditures along with the financial resources of the researcher's convinced him/her to conduct a research in education side. The demand for education as well determinants of educational expenditures remained the topic of discussion among the researchers in past and recent time as well for planning and research purpose.
The study of Kuvat and Ayvaz (2020) examined the determinants of out of pocket educational expenditures of Turkey households and for this they used the Turkey Household Budget Survey, 2017. The Tobit and Probit model was used to analyze the data. The results of the study highlights that education of the household head, income of the household, and household's having personal house were the positive significant determinants of educational expenditures in study area. On the other hand, they further found the negative impact of family size and distance from home to educational institution on the household head's decision regarding educational expenditures.
Song and Zhou (2019) investigate the role of inequality in opportunity in educational expenditures in China using Panel data of china. Education of household heads, location (urban/rural) and income of the household was taken as independent variable and the results revealed that all of the above mentioned variables found the significant but the negative determinants of educational expenditures.
Abbam (2018) conducted a study to explore the role of socio-demographic factors of households in case of educational expenditures in Ghana. The results indicate that poverty of households significant but the negative impact on educational expenditures of the household heads while the location (urban/rural) and household having female heads were the positive significant determinants in this regard. The researchers also reached at the conclusion that relative to male household heads, the female headed households were more likely to invest on their family members in Ghana.
Iddrisu et al. (2018) used the Ghana Living Standard Survey, 2012-13 to investigate the head decision for educational expenditures by keeping the role of household factors in this regard. The results of the analysis highlights that the researchers found no differences in mean educational expenditures among the households on primary school enrolled students in both gender while the parents prefer to invest more on male student than female one at higher level of education. They concluded that the higher education decision of parents for student educational expenditures was totally male based in Ghana and ignore the female child in this case.
Wongmonta and Glewwe (2017) tried to explore the role of gender on the determinant of education using the Socio-economics Survey Data of Thailand, Thailand. They used the Engel curve to find out the degree of equality among the gender in terms of educational expenditures. The result of the study that revealed comparative to male child, the female child was prefer by the parents in terms of educational expenditures. They also concluded that parents of Thailand treated both the gender equally when they decided on invest on them.
Chi and Qian (2016) tried to discover the impact of household's factors on the investment decision in educational expenditures in China. The China Household Education Survey, 2007 and 2011 was used in this regard. The mean approach was used to analyze the pattern of household educational expenditures on different independent variables and the results shows, the income of the household heads and educational expenditures were less correlated to each other. In detailed, they found that relative to rich household heads, the mean educational expenditures were low income heads were higher. They reached at the conclusion, that low income/poor household heads were more interested than the richer one when they decided to educate their family person in China.
The study of Andreou (2012) revealed that income of the household heads has positive significant impact on educational expenditures in Cyprus. It means the educational expenditures in Cyprus was the direct proportion of household income. Beside income, age of the household's head, education of the head and residence of the household also found as the significant determinants of educational expenditures in study area. The 60-90% variation found in educational expenditures among the children whose were enrolled in primary and middle classes. However, age and household head education have the negative impact on educational expenditures in Cyprus.
Quang (2012) tried to explore the role the impact of household factors over the educational expenditures and for this purpose, the Vietnamese Household Living Standard Measurement Survey, 2006. Tobit model was applied to empirically test the hypothesis. The results Tobit model shows that household head income has the direct impact on educational expenditures as it was significant and having positive sign. According to the results, education of household head and his/her work status also found significant and positive determinants of educational expenditures. Further, the mean educational expenditures of household were higher among primary to middle school going children while the lower mean educational expenditures were found in pre-school or university going children in Vietnam.

Very few studies are conducted in case of Pakistan investigating the role of household factors in educational expenditures in recent time with different objectives. For example, the study of Yousaf et al. (2021) used the three round of Pakistan Household Budget Survey data likes, 2013-14, 2015-16 and 2018-19, to compare the household mean educational expenditures at province level in Pakistan. They reached at the conclusion, with the passage of time, the mean educational expenditures were increasing in all province but this increase was higher in Sindh and KP. On the other hand, the study of Idrees and Khan (2020) tried empirically investigate the demand for education for different level. They used Pakistan Social and Living Standard Measurement Survey, 2014-15 to achieve the objective and they concluded that head education, earning's educated persons and ratio of male in every targeted group found the significant impact on demand for education at each level. The present study, therefore, in the context of Pakistan is an attempt to empirically investigate the impact of household's characteristics on OOP (Out of Pocket) educational expenditures decision of household's head. We/researchers does not confine the OOP educational expenditures at any specific level of education rather we used the term educational expenditures from primary to Ph.D. Law, Medical, Engineering etc. in Pakistan. Our next contribution in literature and especially to education literature is, we have used two most important variables, which was not used by any other's researchers before like, distance from home to educational institution and numbers the family person whose were currently enrolled in educational institution. The findings of our study will enable the educationist policy makers to develop such types of polices to reduce the educational burden from household's side in Pakistan.

3. Analytical Framework

The most significant part of the study that how and what method will use to achieve the objectives of ongoing work is discuss in this segment of the study. Basically, we are interested to address the pattern of households mean OOP (Out of Pocket) educational expenditures and to empirically investigate the impact of household's characteristics on OOP educational decision of household head in Pakistan, therefore, we use the appropriate data analysis technique for both objectives. The details of both data analyses are given below:

a) Descriptive Analysis

To keep in mind, the first objective of the study to find out the pattern of mean OOP educational expenditures of the household heads based on their province, we used the simple concept of mean approach using SPSS 20, software.

b) Pragmatic Analysis

To empirically investigate the impact of socio-demographic factors of households on household head's decision in case of OOP educational expenditures needs to use a sophisticated data analysis method. In our case, the best and suitable data analysis technique is Ordinary Least Square (OLS) technique just because our dependent variable has the same characteristics, which is the basic requirement to use this method. In current study, our dependent variable is OOP educational expenditures, which is measured in terms of Pakistani rupees have the properties of continuity and linearity that is why we use the multiple regression model using OLS.

4. Econometric Model and Variables Description

Our dependent variable OOP (Out of Pocket) educational expenditures depend upon other's socio-demographic characteristics of the household's like, location, gender of the head, education of the household head, education of spouse, household total income, distance from home to educational institution and numbers of person currently enroll in educational institution. If we write our theoretical model of OOP educational expenditure in the farm of econometric model than this model looks like,

$$\text{OOP (Out of Pocket)Education Expenditures} = \alpha + \beta 1\text{location}\left(\frac{\text{Urban}}{\text{Rural}}\right) + \beta 2\text{Head\_gender (Male/ Female)} + \beta 3\text{Head\_income} + \beta 4\text{Head\_education} + \beta 5\text{Spouse\_education} + \beta 6\text{Distance1} + \beta 7\text{Distance2} + \beta 8\text{Currently\_enrolled\_student} + ei$$

In the above model, we have one dependent variable and seven independent variables and their detail description given below according to the order.

5. Variables Description

5.1. Dependent Variable

OOP (Out of Pocket) educational expenditures is our dependent variable which measured in terms of Pakistani rupees consist of educational expenditures on fees, funds, examination fee, uniform, books and other miscellaneous things.

5.2. Independent Variables

We have seven independent variables in total and out of them, income, head education, spouse education and number of currently enroll are quantitative in nature while location, gender of the head and distance from home to educational institution are qualitative/dummy in nature.

5.3. Details of Quantitative Variables

(a) Income of the Household

Summation of total earning of all those family persons whose were actively involved in work activity for reword for a current year and it is measured in terms of rupees.

(b) Head Education

Head education is a quantitative variable and we measured it with complete year of head education.

(c) Spouse education

It is also a quantitative variable which is measured in terms year, therefore, spouse education is equal to education of spouse in complete year.

(d) Currently Enrolled Students

All those students were taken as sample which were currently enrolled in educational institution for ongoing year of analysis. The terms used to measure currently enrolled student is number that is why it is included in quantitative variables.

5.4. Details of Qualitative/Dummy Variables

(a) Gender of the head

Gender of the head is qualitative in nature, which have two outcomes like male household head or female household head. To investigate the role of gender in case OOP educational expenditure, we take female as a base category.

(b) Location of the Household

Location of the household is also a dummy variable having two categories, urban and rural and in our case, we take rural as a base category.

(c) Distance from Home to Educational Institution

Distance from home to educational institution is measured in terms of kilo meter (km) in the data set but to empirically estimate it impact, the researchers transform it into dummy variable. In our case, we make three category of distance likes, distance0 (0-2km), distance1 (2km-5km) and distance2 (more than 5km) and we take distance0 is reference category. In the above model, we used distance0 and distance1 separately as an independent variable but we compared both category with distance0, which is our reference category.

ei = error term

5.5. Data Set

Pakistan Social and Living Standard Measurement Survey of year 2007-08, ROUND-IV was taken as source of data to achieve the objectives. This data set contain the information of 107207 individuals and 15568 households. As we are concerned with those households whose have positive educational expenditures, therefore, after removing the miss values, we have left 9376 households for analysis. Out of total numbers of the households, the 4129 households belong to Punjab, 2070 households belong to Sindh, 1852 NWFP (Khyber-Pakhtunkhwa) and 1325 households belong to Baluchistan.

6. Empirical Results

This segment of the study will provide us a platform in the light of findings to make some valuable policies in the context of Pakistan to improve the existing education status and minimize the educational burden from the household's side. Mean educational as well as the multiple regression was applied by the researcher to investigate the role of independent variables in this regard. The details interpretation of both sub part of the analysis given below:

6.1. Mean Analysis

This analysis is very simple to done but have a very crucial interpretation in field of social sciences general and for economics special. We have only one table in case of mean OOP (Out of Pocket) educational expenditures based on overall Pakistan case. The interpretation of the above mentioned table given below:

Table 1 indicate the household heads mean out of pocket educational expenditures arrangement based on their province of residence in Pakistan. The mean out of pocket were found maximum among the household heads belongs to Punjab province and this amount was 4059 rupees while the number of Khyber-Pakhtunkhwa and Sindh was second and third respectively based on mean OOP educational expenditures. The minimum mean OOP educational expenditure were found in Baluchistan province where this amount was 1414 rupees.

Table 1: Mean OOP (out of Pocket Educational Expenditures) and Province of Household Heads

Household heads province	Mean OOP educational expenditures	Number of households
Punjab	4059	4129
Sindh	3188	2070
Khyber-Pakhtunkhwa (KP)	3648	1852
Baluchistan	1414	1325
Total	3412	9376

Data Source, Pakistan Social and Living Standard Measurement Survey, 2007-08.

6.2. Regression Analysis

Our main focus in present study is to explore the impact of household's characteristics in determining OOP (out of pocket) educational expenditures and further based on the findings, the policy maker will be able to construct some solid policies to overcome the issues of educational system as well as household's problem in case of financing educational expenditures. In current situation, we have used the multiple regression model to check the impact of independent variables over the OOP educational expenditures. The result of the said model is presented in table 2.

Table 2 present the results of multiple regression estimates in case of OOP educational expenditures in Pakistan. All of the quantitative and qualitative independent factors included in the model found significant and positive contributors to the OOP educational expenditures of household heads in Pakistan. Location of the household heads matter in decision making as it has significant and positive coefficient value, mean relative to rural household heads, the average OOP educational expenditures of urban household heads was Rs.1194. Strong financial background and education of the majority of the family persons may be one the reason of high spending among the urban households in Pakistan. The same kind of findings was also found in the studies of Acerenza & Gandelman (2019), Jenkins et al., (2019), and Andreou (2012). To investigate the impact of gender of the head which is a dummy variable having two outcome male and female head and we take female is our base/reference category. The result of gender of the head exposed that comparative to female household heads, the male household heads were spending Rs.1057 more average in on education as the coefficient of the variable has significant and positive sign. Majority of the household head in Pakistan are male and they are the main earners as well as decision maker regarding any household activities and specially for education and this is the one of the reasons of high spending among male household heads. The study of Kuvat and Ayvaz (2020) confirm while the study of Mellte et al. (2011) goes against of our result finding of gender of the head. As expected and based on the human capital theory, income found the positive determinant of OOP educational expenditures in present study. OOP educational expenditures increases as the income of the household head's increases in Pakistan as the sign of coefficient is positive and its impact is significant. Income of the households is to be considered as main source of financing household expenditures and especially the educational expenditures, therefore this is one of the reasons of high spending among the households whose have more income to spent. The positive impact of income on educational expenditures is also supported by many previous studies like, Glewwe and Jacoby (2004), Tansel and Bircan (2006) and Ogundari and Abdulai (2014). The positive and significant sign of head years of education insight that increase in the year of education of the head, leads to increases the OOP educational expenditures by Rs.127 on average. In education literatures, it is expected that educated household head more inclined toward to invest on the children in terms of providing standard education for this he/she paid high amount in terms of education expenditures. Educated parents are more conscious about the futures of their children, therefore, it is one the reason of more spending among the educated parents on education sector. The studies of Yueh (2006) and Omori (2010) have also the same findings in case of head education in China and United State respectively. Just like education of the head, the spouse education has positive and significant impact on OOP educational expenditures mean if the education of the spouse increases by one year more it leads to increase the OOP education expenditures by 56 Rupee on average. It is generally seen that educated spouses paid more attention to every aspect of life of their children and specially in education aspect and for this they prefer to spend more amount to provide quality education to them. The studies of Sarkar (2017) and Bayar and Ilhan (2016) have the same conclusion about the education of spouse/mother in case of educational expenditures in India and Turkey respectively. Distance from home to educational institution is taken as dummy variable as mentioned in the methodology chapter and we have three categories of it and the base category is the distance0 (location of educational institution within the range of 0km to 2km). Both the category of distance found significant with positive sign. In case of distance1, it indicates that the household heads whose lives within 2km to 5km area range from the educational institution were spending Rs.2030 more on average as comparative to those, whose were living in range of 0km to 2km (Distance0) area from educational institution. In second dummy case of distance2, the significant coefficient sign shows that the household heads living in the range of more than 5km area away from educational institution were spending 3369 rupees more on average relative to those whose were living in the range of 0km to 2km area away from educational institution. The one the reason of high educational expenditures among the households in case of increases in distance is that they paid a huge amount in terms of transport charges. The findings of distance from home to educational institution support the theoretical justification of the researchers as they believe that educational expenditures are positively correlated with the increase in the distance. As expected, the coefficient value of currently enrolled student was found highly significant at 1% level of significant and its sign is positive which show that an enrollment of an additional student leads to increases the OOP educational expenditures of households by 734 rupees on average. It is common perception and it is true that increases in the number of currently enroll students, parent's educational expenditures also increase with every extra enrollment. The 27% variation in OOP educational expenditures was due to independent variables as the value R-square indicates in the model. Our OOP educational expenditures model is well specified as the value of F-test, 24.82 is significant at 1% level of significant.

6.3. Diagnostic Tests

Due to cross sectional nature of the study, the possible problems we will face the heteroscedasticity and Multicollinearity and for this purpose, we have done test to check both the problem and the details of tests given in the result table.

a. Multicollinearity

The values of tolerance and VIF are presented in table 3. The results of the tolerance test indicate that we have no issue of Multicollinearity as the tolerance level of all the repressors are greater than 0.2. The same is the case of VIF, the VIF values of all the independent variables are greater than 0.5 and it show that our model is free from the problem of Multicollinearity.

b. Heteroscedasticity

The original issue related to cross sectional data is the heteroscedasticity and to know whether the problem of heteroscedasticity exits in our case or not, therefore, for this purpose, we have done Breusch-pagan/Cook-Weisberg test. The value of the test presented in the table show that, our model is free from the problem of heteroscedasticity as the value is insignificant.

Table 2: Regression Results of Out-of-Pocket Educational Expenditures Based on Household Head's Socioeconomic and Demographic Status in Pakistan

Variables	Coefficients	Standard error	P-value	Tolerance	VIF
(Constant)	2209.462	257.565	.000		
Location (rural is base)	1194.967	107.318	.000	.913	1.095
Gender of head (female)	1057.059	246.979	.000	.987	1.013
Income in Rupee	.008	.000	.000	.890	1.124
Head education	127.376	10.125	.000	.951	1.052
Spouse education	56.031	11.304	.000	.841	1.189
Distance1(Distance0)	2030.104	193.775	.000	.985	1.015
Distance2(Distance0)	3369.129	240.007	.000	.969	1.032
currently enroll student	734.071	33.711	.000	.967	1.034
R-Square	.275				
F-Test	247.824 (0.000)				
Breusch-Pagan/Cook-Weisberg test	10321 (0.5461)				

Data Source, Pakistan Social and Living Standard Measurement Survey, 2007-08

7. Conclusion and Recommendation

In current study, we have reached at some very crucial and interesting conclusion. In case of mean expenditures approach, we have found that the mean educational expenditures of households of the Punjab province were relative to the households of other province while the number of KP was second in this regard. Moreover, if we compare the mean educational expenditures of Baluchistani households, we find that it was three time less than the educational expenditures of the Punjab province households. The results of OOP (out of pocket) educational expenditures model show that all independent variables like, location (urban/rural), gender of the head (male/female), income of the household head, education of head, education of spouse, distance from home to educational institution and numbers of currently enrolled students found positive and significant determinants of OOP educational expenditures of the households in Pakistan. In case of rural-urban comparison, the household heads of urban areas were spending more than rural household heads on the education of their family members. Similarly, relative to female household heads, the male household heads were more interested to invest on their family member education in terms of average OOP educational expenditures. Income of the household heads also had the positive influence on the OOP educational expenditures. Education of both head as well as spouse too had significant contributors in household OOP educational expenditures. The empirical result of our study in case of distance from home to educational institution support its theoretical importance. The OOP educational expenditures of the households who were living at more distant locations from the educational institution were higher than the households living nearer to educational institution. An enrollment of additional student in educational institution create educational burden on parents as it has been proved in our results. In the light of the findings, it is suggested to the higher authority to make such types of educational policies which will reduce the educational expenditures burden from the household's shoulder. A considerable increase in the federal as well as provincial educational budget is one of the policy options for the educationist to reduce the household's educational expenditure burden. The second and the most important aim is to provide the basic and higher education to the masses at locations closer to them, resultantly, it will minimize the transport charges of the households as it is the part of educational expenditures. Finally, top priority should be given to the development of education sector of rural area so that the rural community has an access to the quality education.

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