THE SOCIO-ECONOMIC DETERMINANTS OF CHILD EDUCATIONAL ATTAINMENT IN PAKISTAN

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DEDICATION

This research is dedicated to my parents for their patience and encouragement.

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All praises and glory to Almighty Allah who is the most merciful and most beneficent; bestowed upon me wisdom, courage and strength to successfully complete this research. I bow my head before Allah, for blessing me with zeal and spirit, which is essential for undertaking any task. I also pay all my respect to Holy Prophet Muhammad (PBUH) who is beacon to well wishes of making and true source of guidance for humanity as whole.

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I hope that readers will find this research useful and interesting.

Amjid Iqbal

ABSTRACT

The objective of the study is to investigate the socio-economic determinants of child educational attainment in Pakistan. A multidimensional nationally representative data of Pakistan Social and Living Standards Measurement (PSLM) survey 2013-14 is used. The study considers the children of age 5-18 years who are currently attending any educational institution or attended in past. To estimate the impact of socio-economic factors on child educational attainment, Censored Ordered Probit model is employed.

The results of aggregate level analysis reveal that the impact of gender and age of the child, age of the household's head, father's and mother's education, household assets, school type (private school) on child educational attainment is positive. Child belong to urban areas of Pakistan and Baluchistan also get more education. The impact of gender of household's head and distance to school on child educational attainment is found negative.

To explore the factors responsible for gender and regional disparities, analysis is conducted at gender and regional (rural/urban) level. The results of gender specific analysis indicate that age of the child, gender of household's head, total assets and income of the household, region of residence including urban areas, Khyber Pakhtunkhwa and Baluchistan, annual school fee and school type are the main factors causing gender disparity in child educational attainment of Pakistan. The estimates at regional level analysis show that age of the child, gender of household's head, father's and mother's education, agricultural land ownership and total assets of the household, Khyber Pakhtunkhwa and Baluchistan, distance to school and school type are the factors responsible for regional disparity in child educational attainment of Pakistan.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Education is not only a consumption activity but also considered as an investment in formation of human capital. The human capital theory proposes that economic growth of a country is closely related to investment in education, job training, organized research, health and internal migration, and without investment in human being it is not possible to have capitalist development [Schultz (1971)]. According to Lorey (1995) educated human capital is the most important source of growth and development for a country.

The economic development of a nation mainly depends on two factors; human capital and physical capital stock. Human capital makes possible the production activities by using worker skills, knowledge, technology and available capital stock. So, we must invest in human capital to develop them. According to Babalola (2003) the rationality of investment in human capital is based on three arguments. First "the new generation must be given the appropriate knowledge which has already been accumulated by previous generations". Second "new generation should think how existing knowledge can be used to develop new products, to introduce new processes and production methods and social services". Third "people must be encouraged to develop entirely new ideas, products, processes and method through creative approaches". Three types of training or education such as education at school, training at work place and other knowledge are important for human capital development [Dubra (2004)].

Education is the fundamental right of every child, both male and female, in all societies. According to the definition of the United Nations Convention on the Rights

of the Child, "a child is a human being below the age of 18 years unless under the law applicable to the child, majority is attained earlier". This is approved by 192 of 194 member countries. As today child is the part of future human capital, so we must focus on child education, because according to Dubra (2004) education is the most important tool used for human capital development. According to previous studies child education is dependent on several factors i.e. age and gender of the child, school type, household and community backgrounds etc. This study focuses on to explore all those socio-economic factors which determine child educational attainment in Pakistan. For this purpose, the study classified all factors into four categories per their characteristics. First category is about child characteristics which include age and gender of the child. Second category consists of household characteristics; gender and age of household head, father's and mother's education, dependency ratio, total assets, income and agricultural land ownership. Third is community level characteristics including region (urban/rural and province) and distance to school. Final is the school characteristics category in which school type (public/ private) and annual school fee (admission/ tuition fee) are included.

1.2 Rational of the Study

By signing the United Nations Millennium Declaration in September 2000, leaders from 189 countries agreed to the eight Millennium Development Goals (MDG), of which two are related to the education that are to be achieved by 2015, First every child should complete primary education (universal primary education for both male and female), and Second is to remove gender disparities at all educational levels. This consensus reflects the view of most international development agencies and economists that education promotes economic growth and social development [Glewwe and Kremer (2006)]. According to Millennium Development Goal, Pakistan was supposed

to achieve 100 percent primary school enrollment and completion (up to grade five) and 88% literacy rate by 2015, but according to Economic Survey of Pakistan 2015-16, the Gross Enrolment Rates (GER) and Net Enrolment Rates (NER) at the primary level was 89 percent and 57 percent respectively at the national level. The GER was 97 percent for male and 81 percent for female; whereas NER was 60 percent and 53 percent for male and female respectively. The GER in Punjab, Khyber Pakhtunkhwa, Sindh and Baluchistan was 97%, 90%, 79% and 71% respectively. The NER was 61% in Punjab, 56% in Khyber Pakhtunkhwa, 51% in Sindh and 46% in Baluchistan. These statistics show that regional and gender disparities are prevalent in Pakistan and the Millennium Development Goal could not be achieved. The question is why Pakistan could not achieve Millennium Development Goal. There may be number of reasons. So, the main purpose of this study is to explore the factors which affect child educational attainment in Pakistan.

1.3 Research Gap

In Pakistan, a limited amount of research work has been done about attainment of child education. Most of the previous studies are conducted about the determinants of child enrollment in Pakistan. For example, Baluch and Shahid (2008); Pervaiz (2012); Sajid and Khan (2016). One study about attainment of child education in Pakistan by Holmes (2003) is outdated and its findings and conclusions may not be applicable to current education condition/situation in Pakistan. Another issue is that existing literature observes mixed results about the impacts of age and gender of the child, and school type on child education. The results of Khan and Khan (2016) and Ngware *et al.* (2011) show that the effect of age and gender of the child, and school type on child education is positive while results of Conlisk (1969) and Kelley (1995) show that the effect of these variables on child education is negative. According to our

knowledge no study in Pakistan has been conducted which focused on both gender and regional (rural/urban) disparities in child educational attainment.

Keeping in view the above gap in the literature, the focus of the study is to find the socio-economic determinants of child educational attainment in Pakistan. The child educational attainment is measured by years of education completed. First, all socio-economic determinants are classified into four categories per their characteristics, child characteristics, household characteristics, community characteristics and school characteristics. Second, data censoring analysis is used to find the latent desire level of education of currently enrolled children. Third, in order to capture best picture of current educational conditions, the latest available data from Pakistan Social and Living standards Measurement (PSLM) survey 2013-14 is used. In last, the analysis is made for whole Pakistan, separately for rural and urbans areas and gender based analysis.

1.4 Objectives of the Study

The following are the main objectives of our study.

i To investigate socio-economic determinants of child educational attainment in Pakistan.

ii To explore the socio-economic factors responsible for gender and regional disparities of child educational attainment in Pakistan.

1.5 Hypothesis of the Study

i Child educational attainment in Pakistan does not depend upon socio-economic factors.

ii The socio-economic variables are not responsible for gender and regional disparities of child educational attainment in Pakistan.

1.6 Significance of the Study

Education acts as a catalyst for economic and social development. Formal education consists of different levels; primary, middle, secondary (matriculation), higher secondary (intermediate) and higher education. Studies discover that the impact of these different level of education on an economy depends on growth rate and development stage of that country. For the growth of developing countries secondary and primary education is more important, while higher education is important for developed countries [Petrakis and Stamatakis (2002)]. In developing countries, primary education and economic growth has strong two-way (causal) relationship [Self and Grabowski (2004)]. Investing in education gives higher social and private return in low-income/ developing countries than developed countries [Barro and Lee (2000)]. Education has positive and strong effect on individual earnings, and the rate of return is high as compared to other public sector investment returns, especially for developing nations [Harmon *et al.* (2003)]. So, it is important to improve our understanding about the determinants of child education. After understanding the factors which influence child education, we can recommend adopting such strategies which may helpful in achieving child educational and reducing the disparities in child educational attainment in Pakistan.

1.7 Organization of the Study

The rest of the study is arranged as follow. In Chapter 2, we present a review of related existing literature. Chapter 3 discusses "education in Pakistan". Model, estimation methodology and data source used by this study is presented in Chapter 4. Chapter 5 discusses results and findings of the study. The last chapter gives conclusions of the study, policy implication and future direction of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of relevant studies made by different authors and researchers. The main focus is to review studies on the socio-economic determinants of child educational attainment. Once we provide the review of available literature, it helps us in finding literature gap which we try to fill.

The determinants of child educational attainment highlighted in the literature are based on child characteristics, household characteristics, community characteristics and school characteristics. The literature is reviewed characteristics/determinants wise in sections. Section 2.2 deals with the review of literature on child characteristics. In Section 2.3, review of literature on household characteristics is provided. Section 2.4 is about review of literature on community characteristics. Section 2.5 discusses review of literature on school characteristics. Finally, conclusions are made on the basis of literature review.

2.2 Review of Literature on Child Characteristics

Glick and Sahn (2000) conduct a study for West Africa by using Ordered and Binary Probit Model. They find that girls are often worse off because the opportunity cost of keeping a girl child in school is higher than that of the boy child. Rammohan and Dancer (2008) use multivariate analysis for empirical study of Egypt Integrated Household Survey data. They conclude that boys are more likely to get more education than girls. A study is conducted by Badr *et al.* (2012) for eight selected Middle East and North Africa (MENA) countries. They use Trends in International Mathematics and Science Study (TIMSS) data. They conclude that child characteristics are more

important than school characteristics in determining child educational attainment. A study for Bangladesh by Maitra (2001) uses censored ordered probit model and concludes that the level of child education is higher for girls than that of boys. Ahlburg *et al.* (2004) conclude that in Egypt, child education is less for rural girls than that of rural boys of the same age group (4-16 years). In case of Vietnam, Liu (1998) uses age in quadratic form and by using multinomial logit estimation techniques she finds that probability of child educational attainment increases with age. According to Durrant (1998) age of the child is an important tool used for determining child education.

Conelly and Zheng (2002) argue that in China, rural girls are getting less education due to both gender and regional prejudice (discrimination). Zhao and Glewwe (2010) study the determinants of child educational attainment in rural China. They use censored ordered probit model for estimation and find that child nutritional status (measured by height-for-age Z score) has positive effects on completed years of education. King and Lillard (1983) conclude by using panel data from the Philippines that well-nourished children perform better in school because they enroll earlier and learn more per year of school. A study for Australia by Le and Miller (2002) use cross-sectional data about people born during 1936-80, and conclude that female children get less education than that of male. For the United States, Conlisk (1969) uses United States Census data of 1960 about school enrollment and attainment. By using ordinary regression analysis, he finds that child age negatively affects child education because at initial ages of a child, education in the United States is free and compulsory, after matriculation education is neither compulsory nor free. Further he also finds that in the United States girls are attaining more education than boys.

In case of Pakistan, Khan and Khan (2016) conclude that the impact of child age is positive, but square of the child age is negative on child educational attainment.

They also find that male children get more level of education than that of female children. A study for Pakistan by Khan and Ali (2005) use a sample of 4000 household from district Faisalabad and Pakpattan. By using probit model they conclude that age of the child positively affect child education of both boys and girls but the impact of age is more for boy's education than girl's education. They also find that the education level of girls is low as compared to boys. According to Ray (2000) boys attend more education than girls in Pakistan. Ahmed (1990) conclude that in Pakistan boys get more level of education than girls. In Pakistan, a study by Bhalotra and Heady (2003) find that there is negative relationship between age and child schooling. Burki and Shahnaz (2003) also conclude that in Pakistan male child get more education than girl because in Pakistani society male is preferred to female. Sajid and Khan (2016) use Household Income and Expenditure Survey (HIES) 2010-11 data. By using logistic model, they conclude that age and gender of the child positively affect child education.

2.3 Review of Literature on Household Characteristics

Tansel (1998) examines the determinants of child educational attainment in Turkey. By using ordered probit model he finds that child education is strongly related to household permanent income. He also notes that effect of income and parental education on girl's education is stronger than on boy's education. Schultz (1971) identifies that household demand for schooling depends on parent's education and household wealth. Serf (2002) is of the point of view that child education has strong relationship with household size and income, and mother's education. The focus of Zhao and Glewwe (2010) is to explore determinants of basic child educational attainment in rural China. To accomplish the objective, they use censored ordered probit regression. They find that household income has positive effect on years of schooling completed. They also find that mother's education and parent's attitude

towards child education have strong effects on child educational attainment. Ermisch and Francesconi (2000) use multivariate analysis for British Household Panel Survey (BHPS) data of Seven years from 1991 to 1997. They find that children whose mother spent more time with them at home have high level of education compared to children whose mother work more during the children's early stages of life.

A study in Bangladesh by Maitra (2001) uses censored ordered probit model for estimation purpose and finds that parents' education has positive and significant impact on both boy and girl's education and mother's education has a powerful effect on child educational attainment compared to father's education. Ilon and Moock (1991) classify the determinants of child education into Six categories; child characteristics, socio-economic factors, opportunity cost, direct school cost, school access and school quality. They conclude that mother's education level is an important determinant of child education, especially for poor households. A study for Taiwan by Lillard and Willis (1994) conclude that the education of mother has a positive and significant effect on daughters' education while the education of father has positive effect on sons' education. Chen (2009) using Instrumental Variable method, concludes that parents' education is the key determinant of child educational attainment, and the role of mother and father education vary across gender and ability level of child in rural China. The education of father has positive and significant effect on boys' and girls' education, and mother level of education only positively affects girls' education. He also finds that for low ability child only father education matter, and education of mother matter only for high ability child.

Conlisk (1969) analyzes the United States Census data of 1960 about school enrollment and attainment. Ordinary regression analysis is used for analysis. The results show that parental education and income has positive and significant effect on child

educational attainment. Wojtkiewicz (2000) uses the National Educational Longitudinal Survey data of 1988 and 1992. He concludes that children belong to stable single-parent households are attending more high school/college than that of unstable single-parent households. Kafle *et al.* (2017) make a study for Tanzania. They conclude that households housing quality and durable assets have positive impact on child educational attainment while the effect of agriculture land ownership on child education is negative. They further reveal that the negative effect of agriculture land ownership is very strong for those children who belongs to rural household or farming related household. Boggess (1998) finds that mother headed or stepfather-mother headed households have negative effect on child education due to less level of resources. McLanahan and Sandefur (1994) evaluate household structure effect on child educational attainment. For this purpose, they use four data set and conclude that children who belong to single-parent household are getting high level of school and college education than that of children who belongs to two-parent households.

Haveman and Wolfe (1993) evidence that parents' education is a powerful predictor of child educational attainment. Olaniyan (2011) uses the data from Multiple Indicator Cluster Survey (MICS) of Nigeria. The estimates of study show that parents' education is the significant determinant of child educational attainment. Garasky (1995) finds that household structure has strong impact on child education at initial ages of a child and as a child grows the household structure become less critical to child educational attainment. Haveman and Wolfe (1995) conclude that the amount of household income and resources allocated to children and the distribution of their timing ultimately affects child educational attainment. King and Lillard (1983) conclude by using panel data from Philippines that children with higher-schooled parents are more likely to have higher level of education. Patrinos and Psacharopoulos

(1997) find a negative impact of income on child educational attainment in Peru. In Morocco, Honsi (1997) evidences that the rate of ever attending school for children from households where the heads have no education is higher for boys than that of girls. They also note that rate of attending school in urban areas is higher as compared to rural area for children who belong to the households where the head has secondary level of education. Lloyd and Blanc (1996) find that children of age 10-14 years who belong to female headed household has higher education than that of male headed household. They further find that the impact of female head is more for girl's education than boy's education.

Shapiro and Tambashe (1997) conclude that gender of household head has no significant impact on boy's educational attainment while girl belongs to household with female head has low educational attainment. Roushdy and Namora (2008) empirically study Egypt Labor Market Survey using reduced-form regression model. They find that father's characteristics positively affect child education. A study by Al-Qudsi (2003) for Yemen, Gaza, Jordan and Kuwait shows that income and parental education has strong positive and significant impact on child educational attainment. According to Emerson and Souza (2008) there is positive effect of both mother's and father's education on child education and the impact of household size is negative on child educational attainment in Brazil. A study for Mexico by Parker (2000) finds that mother's and father's education is important for both boys and girls, but some evidence show that father's education is more important for child educational attainment, especially for a child belong to poor family. In case of Turkey, Goksel (2008) finds that increase in income and an improvement in parental education level increase child education and the effect is more for girls than boys. Knight and Song (2000) conclude that children whose mother is more educated than father can get higher level of

education. Ersado (2005) uses multinomial logit for estimation purpose and concludes that the mother's education has positive impact on child educational attainment in rural and urban areas of Zimbabwe and Nepal whereas the impact is only on urban children in Peru. Coulombe (1998) uses a bivariate probit model and finds that there is no effect of father's education on child schooling. For Zambia, Nielsen (1998) uses the bivariate estimation techniques and finds no impact of father's education on child educational attainment.

In Pakistan, a study by Behrman *et al.* (1997) use International Food Policy Research Institute (IFPRI) 1989 survey data and conclude that the impact of household income on child educational attainment is positive for rural areas. They also find a significant positive effect of father's education for both girls and boys education and mother's education positively affect only girl's educational attainment and no effect on boys' educational attainment. Khan and Ali (2003) collect data from 4000 household from district Faisalabad and Pakpattan. By using probit model, they conclude that parent's education, per capita income and household assets positively affect child educational attainment and the effect of household assets is ten times more for boys separately, while the effect of child dependency is negative. By using the Pakistan Integrated Household Survey (1991) data, Holmes (2003) concludes that parental education is significant determinant of child educational attainment for both male and female. He also points out that household wealth, land ownership and other assets have positive effect on child educational attainment and the wealth influence is greater for females. Khan and khan (2016) make a study for Pakistan. They conclude that the education of parents has a positive effect on child educational attainment, especially impact of mother's education on female education is highly significant for both rural and urban areas but this impact in rural areas is little more significant than that of urban

areas. They also find that household expenditure and household head age have positive impact on child educational attainment and the impact is more for rural areas. Further they conclude that household size negatively affect child education specially for rural female children.

Sajid and Khan (2016) use Household Income and Expenditure Survey (HIES) 2010-11 data. By using logistic model, they conclude that child education is positively affected by parental education and household assets while income of the household does not play any significant role in child education. A study for Jhang (Punjab) by Hashmi *et al.* (2008) use multiple regression analysis to investigate the determinants of child educational attainment by using a sample of 288 households. They conclude that both father and mother's education positively affect girl education. They also find that girl who belong to household having agricultural land has high level of education than that of household with no agricultural land. Khan and Ali (2005) collect data from 4000 households from district Faisalabad and Pakpattan. By using probit model they conclude that parent's education has positive impact on child educational attainment and the impact is more for girls compared to boys. They also find that household assets, per capita income has positive impact and household size has negative effect on child educational attainment. Burney and Irfan (1991) use the 1979 Population, Labor Force and Migration national survey data and conclude that the impact of household income on child educational attainment is positive. Sathar and Lloyd (1994) use Pakistan Integrated Household Survey (PIHS) of 1991 data, and find that household income positively affects child educational attainment. Bhalotra and Heady (2003) conclude that in Pakistan and Ghana, the effect of income on child education is significantly positive. Lodhi *et al.* (2011) by using multinomial probit model on data of 963

households. They find that household head age negatively affect child educational attainment.

2.4 Review of Literature on Community Characteristics

Another major issue discussed in the literature is the existence of regional disparity in child educational attainment. A study on Moroccan children by Honsi (1997) finds that urban children perform better than that of rural children and underinvestment in education is more in rural than in urban areas, especially with regards to school enrolment and attainment. Using Tanzania as a case study, Cooksey *et al.* (2001) find important differences between urban and rural schools. Specifically, they report a differential of 17 percentage points in net enrolment rates between rural and urban areas. Schultz (1971) reviews that the market failures may be responsible for inefficient investment in the schooling of girls than that of boys. By using panel data from the Philippines King and Lillard (1983) find that distance to school has a negative impact on child educational attainment. Yang *et al.* (2013) conduct a study for rural China. They make a comparison among family, child and community level characteristics and conclude that community level characteristics has positive and significant effect on child educational attainment. Dickerson and McIntosh (2013) find that distance to school have overall no net effect on child educational attainment in England. Hazarika and Bedi (2006) estimate that schooling cost (both direct cost and distance to school) has negative impact on child educational attainment.

For the first time Kondylis and Manacorda (2010) study the effect of distance to school on child educational attainment in Tanzania. They conclude that higher distance to school negatively affects child educational attainment. They further suggest that improving access to school helps to increase child education especially in rural areas. Ahlburg *et al.* (2004) suggest that building more schools improves child

educational attainment in Egypt. Lavy (1996) concludes that supply constraints (availability of and access to school) for middle and secondary schools are of same importance as primary schools is increasing child educational attainment. Vuri (2008), using the data from the Ghana Living Standard Survey 1998-99 and the Guatemalan Living Standards Measurement Survey (GLSMS) 2000, concludes that availability and access to school has a strong and well-defined positive effect on child educational attainment. Zhao and Glewwe (2010) study the determinants of child educational attainment in rural China. They use censored ordered probit model for estimation and find that school distance negatively affects child education. Bommier and Lambert (2000) conclude that distance to school negatively affect child educational attainment because children may not go to school by own. For Yamen, Sanchez and Sbrana (2009) suggest that building of more schools in rural areas improve child education in Yamen. Ersado (2005) concludes that the number of school has positive affect on child educational attainment in Nepal.

A study for Pakistan by Shah (1986) concludes that due to the lack of schools, female education is affected more than male education because our traditional culture requires separate schools for female. A study for Jhang (Punjab) by Hashmi *et al.* (2008) use multiple regression analysis to estimate a sample of 288 households. They conclude that school distance negatively affect girl educational attainment. Holmes (2003) uses the Pakistan Integrated Household Survey (1991) data and finds that male child belongs to Khyber Pakhtunkhwa or Baluchistan province get high level of education relative to male child who belongs to Punjab. Hamid and Siddique (2001) apply probit model on the data collected from 250 households in Karachi, Sialkot and Faisalabad. The results show that school distance has positive impact on child educational attainment, but the result is statistically insignificant. Sajid and Khan

(2016) use Household Income and Expenditure Survey (HIES) 2010-11 data. By using logistic model, they conclude that child education is negatively affected by distance to school and child who belongs to urban areas get more educational attainment.

2.5 Review of Literature on School Characteristics

There are some studies which investigate the effect of school quality on child educational attainment such as Behrman and Birdsall (1983); Hanushek, (1995); Basu (1998); Behrman and Knowles (1999); Lannert (2006). These studies reveal that school quality and child education are positively related. Lannert (2006) conclude that child educational attainment is not only affected by social and household background measures but also by school type and quality. Behrman and Knowles (1999) suggest that expenditures paid to schools may result from household's payment for higher quality schooling and not from a progressive school fees structure for a given school quality. Study for Australia by Buckingham (2000) concludes that students of private school academically performing better than that of public school students and having more chances to complete 12 years of education. The study also finds that in higher education, students of private school participating more than that of public school students. Gannicott (1997) finds that in private school the probability of high school certificate completion is high than of public school.

A study for Australia by Long *et al.* (1999) use the data of Longitudinal Surveys of Australian Youth (LSAY) and conclude that students of private school stay more at school (more attainment) as compared to public school students. Sparkes (1999) finds that school type has an independent effect on child educational attainment. Williams (1987) concludes that private school positively affect child educational attainment. Coleman *et al.* (1982) make a study for United States. By using Oaxaca's method, they

conclude that private school positively affect child education more than that of public school. In another study, Coleman and Hoffer (1987) confirm that private school positively affect child educational attainment more than that of public school. A study for Ghana conducted by Glewwe and Ilias (1996) conclude that blackboard provision and repairing of school buildings (roof leakages) significantly increase child educational attainment. The study in Nairobi by Ngware *et al.* (2011) use the school survey data of 83 primary schools of urban areas. They compare private and public schools on the basis of infrastructure, teacher qualification, classroom size and pupil-teacher ratio. They conclude that public schools are better than private schools and have positive impact on child educational attainment.

Glewwe and Jacoby (1994) find that school characteristics are having significant and positive impact on child educational attainment specially for middle school students. In case of Canada, Frenette and Chan (2015) conclude that the children study in private schools get high level of education than that of children study in public schools. Kelley (1995) confirms that private schools positively affect child educational attainment than that of public schools. Alderman *et al.* (1996) find that distance to primary school has positive impact on child educational attainment. Heyneman and Loxley (1983) state that the impact of school quality is stronger than family characteristics on child educational attainment, and the effect is more for developing countries as compared to developed countries. A study for India by Kingdon (1996) concludes that private schools (schools which charge tuition fees) positively affects child educational attainment compered to public schools (schools with free education by Government). Holmes (2003) uses the data of *Pakistan Integrated Household Survey* (1991) and conclude that distance to school negatively affects child educational attainment.

The literature reviewed above helps us to conclude the following:

1. The impact of some determinants/ variables i.e. age and gender of the child, and school type on child education are conflicting. Some studies conclude that age and gender of the child, and school type positively affect child education (Khan and Khan, 2016; Ngware *et al.*, 2011) whereas some other studies come to the evidence of negative impact on child education (Conlisk, 1969; Kelley, 1995). So, there is need of proper consideration of the issue.

2. No study is available on child educational attainment for Pakistan which captures all four types of characteristics.

3. In Pakistan one study about child educational attainment by Holmes (2003) seems to be outdated and hence its findings and conclusions may not be applicable to current education situation/condition in Pakistan. However, in order to have a comprehensive view of the current situation of child education there is a need to use latest available data. The study attempts to explore the socio-economic determinants of child educational attainment in Pakistan. This study uses latest available data from Pakistan Social and Living standards Measurement (PSLM) survey 2013-14.

CHAPTER 3

EDUCTION IN PAKISTAN

3.1 Introduction

This chapter attempts to draw a clear picture of education system in Pakistan. This chapter is divided into several sections. In section 3.2 data of educational statistics has been provided. Section 3.3 discusses educational enrollment at primary, middle, and high school level. Government of Pakistan expenditure on education is discussed in section 3.4. In Section 3.5 educational MDGs and Pakistan performance in achieving these goals/targets are presented. "What are the responsibilities of provincial government per 18th amendment"? are discussed in Section 3.6. Section 3.7 highlights some important problems of educational policy implementation in Pakistan.

3.2 Current Educational Statistics of Pakistan

3.2.1 Literacy Rate

Literacy rate is considered one of the important indicators used for the measurement of education level of a nation. In Pakistan, during first census of 1951 the literacy rate was 17.9 percent with the definition of "one who can read a clear print in any language" is considered as literate for all ages. During 1998 census this definition improved, and an individual of age 10 and above who can read newspaper and write a simple letter in any language is considered as literate. Table 3.1 indicate that, in 2015 the overall literacy rate in Pakistan is 60 percent with 70 percent for male and 49 percent for female, and the gap between male and female literacy rate is 21 percent. At province level Punjab is on top with 63 percent literacy rate, Sindh is on second position with 60 percent, Khyber Pakhtunkhwa 53 percent and Baluchistan with lowest literacy of 44

percent. These statistics show that in Pakistan there exist both gender and regional disparities.

3.2.2 Gross Enrolment Rates (GER)

The Gross Enrolment Rates (GER) is defined as the participation rate of children attending primary school divided by the number of children of age 5-9 years. A high level of GER only indicate high level of participation, but not indicate enrolment. The Table 3.1, shows that in Pakistan GER at primary level (excluding Katchi/ Pre-primary) for age group 5-9 is 89 percent (97 percent of male and 81 percent of female). At province level Punjab 97 percent, Khyber Pakhtunkhwa 90 percent, Sindh 79 percent, and Baluchistan 71 percent. GER show the presence of gender and regional disparities in education in Pakistan.

3.2.3 Net Enrolment Rates (NER)

The Net Enrolment Rates (NER) is defined as the number of students of age group 5-9 enrolled in primary school divided by the number of children of same age group for that specific level of education. The statistics of Table 3.1 indicate that in Pakistan net enrolment rates at primary level (Pre-primary/ Katchi excluded) for age group 5-9 years is 57 percent with 60 percent for male and 53 percent for female. At provincial level Punjab is on top with 61 percent, Khyber Pakhtunkhwa on second position with 56 percent, Sindh 51 percent and Baluchistan with lowest NER of 46 percent.

3.2.4 Out of School Children

Out of going school children is one of the most important issue in developing countries. According to National Institute of Population Studies (NIPS) projections for 2015, in Pakistan there are total 51.17 million children of age 5 to 16. Out of which

22.64 million (44 %) children are out of school. In total, out of school children, 12.11 million are girls and 10.53 are boys. Currently 5.03 million children of primary-school-going age are out of school. At the middle, high and higher secondary level, there are 6.40 million, 4.88 million and 6.33 million children respectively are out of school.

Table 3.1:Literacy rate, GER and NER Statistics of Pakistan for 2015. (Percentage)

Province/ Region	Literacy Rate (age 10 years & above)			GER (Age 5-9 years)			NER (Age 5-9 years)		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
Pakistan	*70*	*49*	*60*	*97*	*81*	*89*	*60*	*53*	*57*
Punjab	*71*	*55*	*63*	*101*	*92*	*97*	*63*	*59*	*61*
Sindh	*70*	*49*	*60*	*87*	*70*	*79*	*55*	*46*	*51*
KPK	*71*	*35*	*53*	*102*	*77*	*90*	*61*	*51*	*56*
Baluchistan	*61*	*25*	*44*	*87*	*51*	*71*	*56*	*35*	*46*

Source: Economic Survey of Pakistan 2015-16, Ministry of Finance, Islamabad, Pakistan.

3.3 Students Enrolment at Different Level

In Pakistan, formal education is provided at different level; primary, middle, secondary, higher secondary, and higher education etc. During 2015, the overall enrolment at national level was 43948.3 thousand in 252.56 thousand educational institutions where 1588.3 thousand teachers are engaged in teaching. In Table 3.2 educational statistics of enrollment at different level in various educational institutions along with total available teaching staff are provided for the session 2015.

3.3.1 Primary Education (Up to grade V)

Primary education is considered the most important stage of child's education. Statistics from Table 3.2 show that in Pakistan, 19846.8 thousand children were enrolled in 165.9 thousand primary institutions where 430.9 thousand teachers were

busy in educating these children. The primary enrolment includes pre-primary enrolment (Katchi) of 9589.2 thousand students, and there are no separate teachers and institutions for pre-primary education.

3.3.2 Middle Education (VI-VIII Classes)

10-12 year is the official age of middle education which includes classes Six-to-Eight. It is clear from Table 3.2, in Pakistan 6582.2 thousand students were enrolled in 44.8 thousand middle institution with 380.8 thousand available teachers for session 2015.

3.3.3 High/ Secondary Education (Grades IX-X)

High school education include grade 9^{th} and 10^{th} and it is also called secondary school education. Table 3.2 show that in Pakistan during 2015, 3500.7 thousand students were enrolled and total 31.3 thousand institution were available where 514.2 thousand teachers were doing their duties.

3.3.4 Higher Secondary/ Inter Level Education (Classes XI-XII)

In Pakistan, higher secondary/ inter level education includes classes 11 and 12. The Table 3.2 reveals that in 2015, the total number of students enrolled at inter level were 1665.5 thousand at 5.4 thousand institution under the supervision of 118.1 thousand teachers.

3.3.5 Technical and Vocational Education

Technical and vocational education is based on academic's activities along with technical knowledge and skills. Table 3.2 indicates that during 2015, at national level 31.9 thousand students were enrolled in 3.6 thousand technical institutes where the number of available teachers were 118.1thousand.

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3.3.6 Degree Colleges Education (Class 13th and 14th)

Degree colleges in Pakistan are based on two types of graduation system; undergraduate (2 or 4-year degree system) and postgraduate (two-year degree system). In Pakistan during 2015, the total number of degree colleges were 1.4 thousand with 1144.8 thousand students and 36.6 thousand teachers. (Table 3.2)

3.3.7 University Level Education

Universities are busy in providing higher education and research in various disciplines. Now a day's universities also offering education of grades 13-16 with traditional level education of classes 15 and onward as well as granting PhD degrees. During 2015 at national level the total students enrolled in 0.163 thousand universities were 1299.2 thousand where 36.6 thousand teachers were busy to educate the students.

Table 3.2: Number of student Enrolled, Institutes and Teachers by Level in 2015 (Thousand)

Education Level	Student Enrolled	No of Institutions	No of Teachers	Pupil-Teacher Ratio
Primary Education	*19846.8*	*165.9*	*430.9*	*46*
Middle Education	*6582.2*	*44.8*	*380.8*	*18*
High/ Secondary Education	*3500.7*	*31.3*	*514.2*	*07*
Higher Secondary/ Inter Education	*1665.5*	*5.4*	*118.1*	*14*
Technical/ Vocational Institutes	*319.9*	*3.6*	*19.4*	*17*
Degree Colleges	*1144.8*	*1.4*	*36.6*	*31*
Universities	*1299.2*	*.163*	*88.3*	*15*
Total	***43948.3***	***252.56***	***1588.3***	

Source: Economic Survey of Pakistan 2015-16, Ministry of Finance, Islamabad, Pakistan.

3.3.8 Pupil Teacher Ratio

Pupil teacher ratio is considered a most common indicator used for educational planning. There is no standard pupil teacher ratio, but low pupil teacher ratio is considered better for teaching-learning process because teacher can pay attention to students. The pupil teacher ratio is also considered as an important indicator of resource devotion to education. During session 2015-16, the pupil teacher ratios are 46, 18, 07, 14, 17, 31 and 15 students per teacher at primary, middle, secondary, higher secondary, technical and vocational, degree colleges and university level respectively in Pakistan.

3.4 Government Expenditure on Education

For year 2014-15 government of Pakistan made expenditure of amount Rs. 598,315/- million on education which is 2.2 percent of GDP with 4.8 percent increase as compared to the educational expenditure in 2013-14 (RS. 537,598/- million). Pakistan has been trying to achieve the target of expending 4.00 percent of GDP by 2018. At provincial level, educational expenditure during 2014-15, Punjab is on top with Rs. 227,090/- million, Sindh, Khyber Pakhtunkhwa and Federal Government spent Rs. 117,121/- million, Rs. 111,711/- million, Rs. 101,291/- million respectively, and Baluchistan with lowest expenditure of Rs. 41,102/- million rupees. (Economics Survey of Pakistan 2015-16)

3.5 Educational Millennium Development Goals and Pakistan Performance

In September 2000, during the United Nations Millennium Summit leaders from 189 nations out of which 147 signed Millennium Declaration which consists of eight goals called Millennium Development Goals (MDGs). Two out of eight MDGs are related to education (Goal 2nd and 3rd) and the target was to achieve these two goals by 2015, ensuring 100 percent primary school enrollment and attainment (up to grade V)

for both boys and girls and elimination of gender disparities at primary level. The target of secondary level education was supposed to achieved preferably by 2015.

Pakistan is also the part of United Nations and agreed on the MDGs. Here we want to evaluate the performance of Pakistan about two educational MDGs (MDG-2nd and MDG-3rd) and Targets. The statistics from Economic Survey of Pakistan 2015-16, shows that in Pakistan during 2015 gross enrolment rates (GER) was 89 percent and net enrollment rates (NER) was recorded 57 percent which is less than 100 percent means that MDG2nd could not be achieved. The gross enrolment rates (GER) was recorded 97 percent and 81 percent for male and female respectively showing gap of 16 percent and net enrollment rates (NER) 60 percent for male and 53 percent for female with 7 percent gap, the gap between male and female gender shows that MDG3rd also cannot achieved by Pakistan.

3.6 Provincial Government Responsibilities Per 18th Amendment

The 18th amendment of Pakistan's Constitution was passed on 8th April 2010, in National Assembly of Pakistan. Two main amendments related to provision of free and compulsory education to children of age 5-16 years (up to secondary level) have been added in the constitution; Article 25(A) regarding right to education says "the state should provide free and compulsory education to children of age group 5-16", and Article 37(B) says "remove illiteracy and provide free and compulsory education up to secondary level with in minimum possible period".

In 18th Amendment Ministry of Education is abolished and major policy components are transferred to provincial governments. The following are some important responsibilities of provincial governments under 18th Amendment of Constitution. [Mustafa (2012)].

3.6.1 New Laws and Legislative Revision

Legislation in Article 25(A) needs to be done earliest. The legislation considers the problems of interpretation of age cohort and required time for the compliance as well as the problem of devotion of responsibilities. Provincial Education Department immediately takes the task of legislation for the supervision of textbooks and curriculum, and center of excellence. All the provinces should revise their 'Textbook Board Ordinance" that new roles can be incorporated in it.

3.6.2 Administrative Measures

The Provincial Education Secretariat needs of announcing new posts up to additional secretary level that newly devoted roles, regulations and responsibilities can be taken. The administrative department/section needs to develop policy and planning wing with appropriate human resource having relevant experience.

3.6.3 Revision of Business Rules

The education department must prepare revised business rules for new roles with the approval of provincial cabinets.

3.6.4 Devising Policy Framework for Private Sector

Education departments must prepare and formulate strategic positions for the engagement of private sector as a co-service provider to attain the constitutional provision of article 25(A) and standard regulators and setting.

3.6.5 Strengthening Directorate of Curriculum and Provincial Textbook Board

After 18th Amendment the Directorate of curriculum has now to perform an important role. but there is lack of financial, technical and human support. So, keeping in mind the role of directorate of curriculum, the provincial government should strengthen it at priority level. Similarly, the institutional and legal framework for the

textbook board must be revised in order to make them confirmable with the devoted functions.

3.6.6 Article 25 (A) and Financial Challenges

To bring 5-16 years of children to school in the context of Article 25(A) the provincial education department needs to take financial estimates of bringing these children to schools. The provision of free and compulsory education is a challenge which needs to adopt strategies for resources generation. The education department also needs to improve the absorption capacity by enhancement of ability through which financial resources can be used in efficient and effective way.

3.7 Problems with Implementation of Education Policy in Pakistan

Public policy is the process which helps the system to solve public problems. The most important thing is the implementation of policy which consists of a practical shape to ideas by using set of activities and structure to make able the people to adjust with new changes (Folwer, 2000). Pakistan being a developing country faces problems generally in all type of policy implementation specifically education. The following are some important problems with implementation of education policy in Pakistan.

3.7.1 Poor Communication System

Policy implementation is a multidimensional process. In Pakistan, education policies are not properly implemented due to poor communication, less ownership of policy and support from stockholders, lack of commitment of implementers, no cooperation and collaboration, less consistent and accurate approach towards the policy goals completion (Rashid, 2004). Therefore, incomplete information creates gap between policy implementers and beneficiaries and thus cause dangerous hurdles to policy implementation (Shahid, 1987).

3.7.2 Weak Administration

In 1979, government of Pakistan realized the importance of effective implementation agencies for proper implementation of policies. Weak administration capacity at the directorate of education in policy formulation and heads of school at implementation are the important factors responsible for education policies not properly implemented. Further government of Pakistan (1998) notices the defective and weak implementation techniques, lack of qualified personnel, weak training, less political commitment and lack of incentives are the reasons of the failures of educational policy implementation.

3.7.3 Poor Policy Evaluation Mechanisms

Poor policy evaluation mechanism is also a problem in the implementation of educational policies in Pakistan. According to Bukhari (1995) it must be ensured that adequate and relevant information are provided to the authority during implementation process.

3.7.4 Financials Issues and Irregularities

A report by UNESCO (2005) finds that the policy implementation is disturbed due to lack of financial resources for education purpose. According to World Bank report (2000), the policy makers must ensure resource availability before developing any policy. The resources include adequate number of trained and qualified staff, and enough financial funds. Without necessary resources availability, it is not possible that a policy is properly implemented.

3.7.5 Inadequate Bureaucratic Structure

Ghaffar (1992) argues that the problem of policy implementation will be unsolved even there is positive disposition with adequate funds and clear information,

unless we have efficient and adequate bureaucratic structure along with excellent professional knowledge. He further asserts that effective coordination is necessary for policy implementation that wastage of resources can be prevented. Shahid (2003) concludes that in Pakistan policies are not properly implemented due to some chronic type factors that occur at the time of both policy making and implementation.

3.7.6 Attitude and Disposition of Public Servant

Attitude of the public servants and their disposition are the important factors that can affect educational policy implementation process. According to Ahmed (1993) in education system the use of powers, developing relationship and keeping of expectations impact to a great extent on the disposition of the policy implementers towards policies.

3.7.7 Failure of Decentralization Measures

In Pakistan while implementing education policies we face the issue of failure of decentralization measures. Naseem (1990) argues that decentralization can provide better opportunity for beneficiaries at gross level and they can get the fruits of policy without difficulty like bureaucratic hurdle. However, in Pakistan there is contrast in the transferring of responsibilities to the personnel as how to act while using the assigned power. There is no suitable direction that can lead to effective contribution in policy implementation.

3.7.8 Lack of Political Will

The political will of policy implementer plays a critical role in effective policy implementation process. Due to less or none participation of implementers such as students, school principals and teachers, the ownership of educational policy became weak in Pakistan. Jatoi (1995) is of the point of view that successful implementation of

an educational policy largely depends on political will of policy makers and implementers.

3.7.9 Leadership Vacuum

Visionary leadership, strong will, strategic planning, trained and qualified teaching staff, society support, students' and teachers' motivation and availability of resources play an important and strong role in implementation of an educational policy [Channo (2003)]. Zaidi (2005) finds that empowering local stockholders, strategical planning, optimal mobilization and utilization of resources, political will, proper evaluation and monitoring of education system are necessary steps for the successful implementation of educational policies.

3.7.10 Corruption

Due to corruption, at large scale, the education system in Pakistan is not working well. Riaz (1998) concludes that for the successful implementation of education or any other policy it is important for authorized and responsible persons to sacrifice their individual and personal interest for the general welfare of the system or society.

CHAPTE 4

MODEL, ESTIMATION METHODOLOGY AND DATA

4.1 Introduction

This chapter discusses the specification of both the theoretical and empirical model, estimation techniques, variable description and data sources used to explore all the possible socio-economic determinants of child educational attainment in Pakistan. This chapter is divided into six sub-sections; 4.2 provides theoretical background. Subsection 4.3 presents empirical model. Estimation methodology is described in 4.4. 4.5 gives background reasons for using Censored Ordered Probit Model, 4.6 is about variable description and data source is presented in 4.7.

4.2 Theoretical Background

As the main focus of this study is to explore the socio-economic determinants of child educational attainment in Pakistan. For this purpose, we need the support of theoretical background and model. First of all, educational attainment model was provided by Becker (1964) in their Human Capital Theory. According to this approach, education is an investment activity and people invest their resources on education. The decision regarding the investment on optimal level of education depends on cost and returns of additional level of schooling. On the one side, education is costly because of direct cost of books and tuition fees etc., and indirect cost in the form of opportunity cost i.e. the forgone earning during the period of education taken. On the other side education is beneficial as it is assumed that education increases one's productivity in the form of future earnings. So, an optimizing individual will choose the level of education that maximizes his/her net return and will continue his/her investment on education up to the point where marginal cost of additional investment become equal

to marginal return. According to this theory, human capital investment varies from individual to individual because of differences in cost and returns conditions.

This theory was criticized on the ground that it considers education completely as a monetary phenomenon, and neglected consumption aspect of education. So, the model was extended by adding consumption motive. Assuming that education can increase the efficiency level of leisure allocation. Heckman (1976) includes consumption motive into the human capital model. Kodde (1988) shows that demand for education becomes higher by integrating consumption motive in the model.

Becker (1965) extends the human capital model of child educational attainment into the household production model and argues that the process of the educational attainment is an aspect of household behavior rather than individual behaviors. In this approach, child educational attainment is considered as a commodity in the household utility function, and the household is like a production unit generating some utility for its members by using some household inputs like time and family characteristics and market inputs like school quality. Adults specially parents in the household make decisions about how to generate and how to use household resources. The children outcomes may be affected directly by parent's decisions through the amount and nature of resource allocated or by their timing, and may be indirectly through the decisions regarding family structure or location where children are growing up. The household production model has been improved continuously.

Engle (1980) hypotheses that the income of the mother is more relevant for child education as compared to other household income. Muller (1990) states, as students grow older, they will increasingly be able to make their own choices and will be less dependent on their family background. Hanushek (1992) comes to the fact that there is

trade-off between quality and number of children for parents, because parents want to maximize household utility which is the function of children's quantity and quality, subject to budget and time constraint. Wilson (2001) integrates both human capital and production function models into a model of educational attainment and concludes that the factors that influence individual demand of education also affect educational attainment.

4.3 Model

In order to explore the socio-economic determinants of child educational attainment, the discussion of model is based on Zhao and Glewwe (2010).

$$EDU_{ih} = \alpha_{\circ} + \alpha_1 INDC_{ih} + \alpha_2 HHC_h + \alpha_3 CC_{ih} + \alpha_4 SC_{ih} + e_{ih} \quad (1)$$

Where,

EDU_{ih} Measure education level attained by child *i* living in household *h*.

$INDC_{ih}$ Is the vector of child's characteristics i.e. gender and age of child *i* living in household *h*;

HHC_h Is the vector of household characteristics; such as education level of father and mother, household head gender and age, dependency ratio, income of the household, agriculture land ownership and total assets;

CC_{ih} Is the vector of community level characteristics i.e. province, region and distance to school;

SC_{ih} Is a vector of school characteristics i.e. school type and school fee;

e_{ih} Is the error term.

4.4 Estimation Methodology

In order to estimate equation 1, we need to know about the child educational attainment. The level of education of children who have completed their education is

directly observable whereas the level of education is not directly observable for currently enrolled children. Therefore, there is need to censor the data to find the latent desired level of education for currently enrolled children. We can get the latent desire level of education for currently enrolled children by following formula;

$$EDU = 0 \; if \; EDU^* = \pi_0$$

$$EDU = 1 \; if \; \pi_0 < EDU^* \leq \pi_1$$

$$EDU = 2 \; if \; \pi_1 < EDU^* \leq \pi_2$$

$$EDU = 3 \; if \; \pi_2 < EDU^* \leq \pi_3$$

$$EDU = 4 \; if \; EDU^* \geq \pi_4$$

In the above equations π_i's are the upper and lower limits of any education level and showing the switching from one lower education level to other higher education level i.e. from primary to middle. For those individuals who have never attended school the value of EDU will be zero. For those individuals who have completed their education, we observe that discrete value of EDU which falls between two cut-off points. For currently enrolled individuals the data is rightly censored with latent desired level of education. We did not know the desired education level for those individuals but we know the current level of education. Therefore, it is assumed that they will complete at least that education level in which they are currently enrolled and therefore $EDU^* \geq \pi_{max}$.

The probability that the value of latent desired level of child's education fall within certain threshold can be written as:

$$P(EDU = 0) = \theta(\pi_0 - \alpha X)$$

$$P(EDU = 1) = \theta(\pi_1 - \alpha X) - \theta(\pi_0 - \alpha X)$$

$$P(EDU = 2) = \theta(\pi_2 - \alpha X) - \theta(\pi_1 - \alpha X)$$

$$P(EDU = 3) = \theta(\pi_3 - \alpha X) - \theta(\pi_2 - \alpha X)$$

$$P(EDU = 4) = 1 - \theta(\pi_{4-1} - \alpha X)$$

Here π_is are the cut off points and θ represent the Cumulative Density Function (CDF) of e_i. The CDF of e_i in our model is standardized normal because we have used censored ordered probit model which is just extension of the probit model. X is the vector of all explanatory and control variables used in the study.

Educational attainment is a series of discrete ordered choice. To attain next high level of education (i.e. from lower secondary to secondary) and to attain an extra year of schooling within certain level of education (from class 2nd to class 3rd at primary level) are two completely different decisions/choices and should be treated differently (Khan and Khan 2016). Therefore, King and Lillared (1987), Holmes (2003) and Zhao and Glewwe (2010) proposed extended form of Ordered Probit model called Censored Ordered Probit Model.

As child educational attainment is an ordered variable, therefore, Censored Ordered Probit Model has been implemented (Miluka and Dabalen, 2008; Zhao and Glewwe, 2010).

4.5 Why Censored Ordered Probit Model?

In order to estimate equation 1, ordinary least square (OLS) technique can be utilized, but there are some problems with using OLS technique, and needs appropriate attention.

First, we need to know about the completed final year of education of the children. Therefore, data censoring analysis is necessary for currently enrolled children. OLS did not consider the censoring and treat identically both currently enrolled children and those children who completed their education in past and will give biased results. Second important issue is that education attainment is a series of discrete ordered choices. In such case OLS cannot be used because it assumes continuous distribution.

Therefore, due to the above-mentioned problems with OLS, King and Lillared (1987) and Zhao and Glewwe (2010) used extended form of Ordered Probit model called Censored Ordered Probit Model.

4.6 Description of Variables

4.6.1 Dependent Variable

In this study child educational attainment is dependent variable which shows education attained by a child of age 5 to 18 years and it is also ordered. To find the attained level of education and transition from on to another level the dependent variable takes five values from 0 to 4; 0 for no schooling, 1 = Primary (1 to 5^{th} Class), 2 = Middle (6 to 8^{th} Class), 3 = Secondary Education (9 and 10^{th}) and 4 = Higher Secondary and others (class 11 and above).

4.6.2 Independent Variables

In order to estimate our model, we used numbers of independent variables. Here we have categorized all the independent variables in to four classes according to their characteristics; child characteristics, household characteristics, community characteristics and school characteristics. First category is child characteristics. They include age and gender of the child. Second is about household characteristics. They consist of age and gender of the household head, father's and mother's education, household income, dependency ratio, agricultural land ownership and total assets. Third category is community level characteristics which include region of residence (Rural/Urban and province) of household and distance to school. Last category is school characteristics which include school type and school fee. Below all the independent variables are explained one by one.

i. Gender of the Child

This study uses gender of child is a dummy variable taking value 1 if child is male, otherwise zero (1= Male, 0= Female).

ii. Age of the Child

It is a continuous variable measured in complete years.

iii. Square of the Child Age

Square of the child age is also a continuous variable and measured in complete years. Square of child age is taken to make it quadratic.

iv. Gender of Household Head

The gender of household head is a dummy variable taking value 1 for male, otherwise zero (1= Male, 0= Female).

v. Age of Household Head

The age of the household head is a continuous variable measured in complete years.

vi. Father's Education

The fathers' education is a categorical variable having five different categories taking value from 0 to 4;

0 = No education,

1 = Primary,

2 = High School,

3 = Higher Secondary and

4 = Higher Education and Others.

vii. Mother's Education

The mothers' education is also a categorical variable having five different categories taking value from 0 to 4;

0 = No education,

1 = Primary,

2 = High School,

3 = Higher Secondary and

4 = Higher Education and Others.

viii. Dependency Ratio

The age dependency ratio of a household is calculated as follows:

Age Dependency Ratio= Sum of household members younger than 15 and older than 64 divide by household members of age 15-64.

ix. Agriculture Land Ownership

The dummy variable taking value 1 if household has agricultural land, 0 otherwise.

x. Total Assets

Sum of the market value of all assets (financial + durable goods).

xi. Income

Annual income of the household.

xii. Region

It is a dummy variable taking value 1 if household belongs to urban region zero otherwise (1= Urban and 0= Rural).

xiii. Province

Three dummy variables are introduced in the study.

D1= Value equal 1 if KPK, 0 otherwise.

D2= Value equal 1 if Sindh, 0 otherwise.

D3= Value equal 1 if Baluchistan, 0 otherwise.

Punjab is used as reference category.

xiv. Distance to School

Three dummy variables are introduced.

D1 = 1 If distance is up to 5 km, 0 otherwise.

D2 = 1 if distance is 6 to 10 Km, 0 otherwise.

D3 = 1 If distance is above 10 Km, 0 otherwise.

"Hostel, distance is not known and other" is used as reference category.

xv. Annual School Fee

Annual school fee includes admission/ tuition fee of the school in which the child is enrolled.

xvi. School Type

It is a dummy variable taking value 1 if School is private, otherwise zero (1 = Private School and 0 = Public/ Government School).

4.6 Data Source

To investigate the socio-economic determinants of child educational attainment in Pakistan, we use data of Pakistan Social and Living Standards Measurement (PSLM) survey 2013-14. PSLM is a multidimensional survey conducted by Pakistan Bureau of Statistics (PBS) having detailed information at individual and bousehold level

characteristics i.e. education, health, occupation, household income, household expenditure, employment etc.

Table 4.1: Province and Region wise Distribution of PSUs and SSUs

Province	PSUs			SSUs/Households		
	Urban	*Rural*	*Total*	*Urban*	*Rural*	*Total*
Punjab	*282*	*287*	***569***	*3150*	*4447*	*7597*
Sindh	*123*	*241*	***364***	*1374*	*3837*	***5211***
KPK	*115*	*144*	***259***	*1301*	*2221*	***3522***
Baluchistan	*36*	*79*	***115***	*409*	*1250*	***1659***
Total	***556***	***751***	***1307***	***6234***	***11755***	***17989***

Source: Pakistan Social and Living Standards Measurement (PSLM) 2013-14.

PSLM 2013-14 covered a very large sample of about 17988 Secondary Sampling Units (SSUs)/ households from 1307 Primary Sampling Units (PSUs) across four provinces of Pakistan. Out of 17989 households, 6233 (34.6 % approx.35%) households belong to urban region and 11755 (65.3 %) households are from rural region. The distribution of PSUs and Households across region and province are given in table 4.1. In the distribution plan of PSUs, the Punjab province has 569 total numbers of PSUs, in which 282 are urban and 287 is rural. The Sindh province has 364 total numbers of PSUs (123 are urban and 241 are rural). The Khyber Pakhtunkhwa province has 259 total numbers of PSUs, in which 115 are urban and 144 belong to rural. The Baluchistan province has 115 of PSUs out of which 36 are urban and 79 are rural. The distribution of PSUs and Households across region and province is given in Table 4.1.

Now in the distribution plan of SSUs, the Punjab province has 7597 total numbers of both regions in which 3150 are urban and 4447 are rural. The Sind province has 5211 total numbers of both regions in which 1374 are urban and 3837 is rural. The Khyber Pakhtunkhwa province has 3522 total numbers of both regions in which 1301 are urban and 2221 is rural. The Baluchistan province has 1659 total numbers of both regions in which 409 are urban and 1250 is rural.

CHAPTER 5

RESULTS AND THEIR DISCUSSION

5.1 Introduction

This chapter explains the main results and findings of the study. Censored Ordered Probit model is employed for estimation purpose. This chapter consists of 3 subsections. Section 5.2 discusses descriptive statistics. Section 5.3 is about correlation among variables. Empirical results are discussed in section 5.4.

5.2 Descriptive Statistics

The summary statistics (minimum, maximum, mean and standard deviation) of main variables used in the study are reported in table 5.1. Child enrollment is a dummy variable and taking value one if child is enrolled. The mean value is 0.85 means that 85 percent children are currently enrolled. Child educational attainment is a categorical variable having five different categories taking value from zero (no education) to 4 (higher secondary and above). The median of child educational attainment is 1.00 which means that most of the children are enrolled in primary level. The gender of child is a dummy variable having value one if the child is male. The mean value of gender is 0.57 means that about 57 percent children are male and the deviation from the mean value is 0.496. We consider children of aged 5 to 18 years in the study. The average age of child is more than 11 years. The mean variation of child age from their mean value is 3.923 years.

Gender of head is also a dummy variable. The average value is 0.90 which means that 90 percent of the households are headed by male individuals. The range of head's age is from 15 years to 99 years and the mean age of head is more than 46 years. For parental education, we have used ordinal variable taking values from zero (no

education) to four (higher education). The median value of father's education is 1.00 which means that mostly education level of the fathers is primary. The median education level of mother is zero means that almost mothers are illiterate. The minimum value of dependency ratio is zero and maximum is nine. The mean value of dependency ration is 1.30 means that on the average there are more than 1 dependent individual across households. Agriculture land is a dummy variable and its mean value is 0.08 which shows that only eight percent of household owned agriculture land. Total assets and total income both are continuous variables. The minimum value of total assets is zero and maximum is Rs. 980000/-. The mean value of total assets is about Rs. 24690/-. Income is ranged from zero to Rs. 101880000/- per year. The mean value of household income is Rs. 606946.49/- per year and the deviation of household income from its mean value is Rs. 1305324.07/-.

The mean value of regional dummy is 0.39 which shows that 39 percent of the sample is belong to urban region and the remaining 61 percent are from rural area. We have used four dummies for provinces and the average values show that 43 percent of the sample belongs to Punjab, 24 percent belongs to Khyber Pakhtunkhwa, 23 percent belongs to Sindh and the remaining 10 percent is from Baluchistan. Distance to school is also categorical variable and ranged from 0 to 4 and the mean value is 0.93 which means that the average school distance is 1 to 5 Kilometers (value=1). The minimum value of school tuition fee is zero and maximum is Rs, 700000/-. The average annual school tuition fee paid by household is Rs. 7034.14/-. School type is a dummy variable taking value one if school is non-government and its average value is 0.33 which shows that 33 percent children are enrolled in non-government schools.

Table 5.1: Descriptive Statistics

Variable	Minimum	Maximum	Mean	St. Deviation
Child Enrollment	*0*	*1*	*0.85*	*0.357*
(1 = if enrolled)				
Child Education	*0*	*4*	*1.00**	*0.988*
Gender (1= if male)	*0*	*1*	*0.57*	*0.496*
Age	*5*	*18*	*11.37*	*3.923*
Gender of Head	*0*	*1*	*0.90*	*0.298*
(1 = if male)				
Age of Head	*15*	*99*	*46.54*	*11.742*
Father Education	*0*	*4*	*1.00**	*1.310*
Mother Education	*0*	*4*	*0.00**	*0.337*
Dependency Ratio	*0*	*9*	*1.30*	*1.017*
Agriculture Land	*0*	*1*	*0.08*	*0.269*
(1 = if yes)				
Total Assets	*0*	*9800000*	*24690.77*	*197863.81*
Income	*0*	*101880000*	*606948.49*	*1305324.07*
Region (1 = if urban)	*0*	*1*	*0.39*	*0.487*
Punjab (1 = if Punjab)	*0*	*1*	*0.43*	*0.495*
KPK (1 = if KPK)	*0*	*1*	*0.24*	*0.427*
Sindh (1 = if Sindh)	*0*	*1*	*0.23*	*0.420*
Baluch (1 = if Baluchistan)	*0*	*1*	*0.10*	*0.300*
Distance to School	*0*	*4*	*0.93*	*0.565*
School Fee	*0*	*700000*	*7034.14*	*15817.922*
School Type	*0*	*1*	*0.33*	*0.469*
(1 = if non-government)				
Sample Size	*30513*			

** For education level, we have reported the median value.*
Source: Author's calculation

5.3 Correlation

The linear association (correlation) among three variables i.e. totals income, total assets and school fee are given in table 5.2. The correlation coefficient of total income and total assets is 0.231 but the sign is positive means that there is very low correlation between these two variables. The correlation of school fee with income is also positive and very low (0.039). Finally, the correlation between total assets and school fee is eight percent (0.08) and positive. So, from this we concluded that there is no significant high linear association among these three variables. That is why we use all these three variables in regression analysis.

Table 5.2: Correlation

Variables	*Income*	*Total Assets*	*School Fee*
Income	1	0.231	0.039
Total Assets	0.231	1	0.083
School Fee	.039	0.083	1

Source: Author's calculation

5.4 Empirical Results

5.4.1 Results of Censored Ordered Probit Model at Pakistan/ Aggregate Level

The estimates of censored ordered probit model are reported in Table 5.3. The coefficient of child's gender (*Gender*) is significantly positive. It means that male children are favored more education than female in Pakistan. The main reason is that our society is more biased toward male education and they want to educate male children on the cost of female education. Age and age-square of the child both show significantly positive impact on child educational attainment but the coefficient of age-square is less than age coefficient which means that education level of a child increases

as the age of a child increases, but after some specific age point the positive impact become lower. The main reason of lowering the impact is that as the age of the child increases the opportunity cost of getting education also increases. These results are consistent with Khan and Khan (2016) and Liu (1998).

The partial coefficient of Gender of the household head is negative and significant indicating that if the household is headed by male individuals, the probability of getting higher education for a child is less. Alternatively speaking, children in female headed households are more likely to get higher education. Age of the household head also has positive and significant effect on child educational attainment. Father's and mother's education also positively affect child educational attainment and both variables are significant. By comparing father's and mother's education coefficients, the coefficient of mother education is greater than the coefficient of father education. It means that educated mothers play a very important role in educating their children and if the mother of a child is educated, he or she will be more likely to get more education than child of uneducated mother. Our findings are according with Knight and Song (2000), Khan and Khan (2016) and Olaniyan (2011)

The coefficient of dependency ratio and agriculture land ownership is negative but statistically insignificant. It means that dependency ratio and the ownership of agriculture land have no statistically significant role on child educational attainment. The income of the household also has insignificant impact on child educational attainment but the impact of total assets on child educational attainment is positive and statistically significant. Children of those households having more assets are more likely to get higher level education. The results are same as Khan and Ali (2003) and Sajid and Khan (2016).

The coefficient of region shows a significantly positive impact on education level of child. If the child is living in urban region, the probability of getting more education is more than their rural counterpart. In order to show the role of province, we have used three dummies for four provinces and Punjab province is used as reference category. The coefficients of province dummies show that if child belong to those households which are located in Khyber Pakhtunkhwa, the chances of getting higher education and switching from lower to higher education level is low. On the other hand, if child belongs to Baluchistan and Sindh, the chance of switching from lower to higher education level is higher but significant only for Baluchistan. These finding show similarities with the results of Honsi (1997), Cooksey *et al.* (2001), Sajid and Khan (2016) and Holmes (2003)

To see the impact of distance to school on child education level, we have used thee dummies for distance. From the results, we conclude that distance to school decreases the chances of getting education for child when the distance is less or equals to 10 kilometers (Km). if the distance is more than 10 Km, the negative impact becomes insignificant. The tuition and admission fee of school has insignificant positively impact on child educational attainment. The quality of education is measured by the type of school in which the child is enrolled. The coefficient of school type is significantly positive indicating that if child is enrolled in private school, the likelihood to attain higher education is more. The results support the findings of previous studies of Kondylis and Manacorda (2010), Buckingham (2000), Gannicott (1997), Long *et al.* (1999), Williams (1987) and Coleman *et al.* (1982).

Table 5.3: Estimates of Censored Ordered Probit Model at Pakistan/Aggregate Level

Variable	Coefficient	Standard Error	P-Value
Constant	*-20.9900*	*0.2026*	*0.000*
Gender of the Child	*0.0971*	*0.0210*	*0.000*
Age of the Child	*0.2501*	*0.0243*	*0.000*
Age Square of the Child	*0.0088*	*0.0009*	*0.000*
Gender of the H-Head	*-0.0841*	*0.0395*	*0.034*
Age of the H-Head	*0.0043*	*0.0010*	*0.000*
Father Education	*0.0882*	*0.0091*	*0.000*
Mother Education	*0.1412*	*0.0202*	*0.000*
Dependency Ratio	*-0.0174*	*0.0112*	*0.122*
Agriculture Land	*-0.0231*	*0.0336*	*0.491*
lnTotal Assets	*0.0059*	*0.0020*	*0.005*
lnincome	*-0.0021*	*0.0033*	*0.516*
Region	*0.0974*	*0.0281*	*0.001*
D – KPK	*-0.0695*	*0.0249*	*0.005*
D – Sindh	*0.0204*	*0.0286*	*0.475*
D – Baluchistan	*0.4026*	*0.0625*	*0.000*
Distance up to 5Km	*-0.7867*	*0.1113*	*0.000*
Distance 6-10Km	*-0.4693*	*0.1156*	*0.000*
Distance above 10Km	*-0.1914*	*0.1201*	*0.111*
Inschool Fee	*0.0051*	*0.0185*	*0.782*
School Type	*0.0989*	*0.0452*	*0.029*
Sample Size	*30513*		

Source: Author's calculation

5.4.2 Results of Gender Based Analysis

The estimates of gender based analysis are reported in Table 5.4. It would help us to observe the factors responsible for gender disparities in child educational attainment. The variable age and age square both are significantly positive but the impact is more for male child as compared to his female counterpart. It means that with increase in age, the chances of attaining higher education level are more for males than for females. The studies of Khan & Ali (2005) and Sajid & Khan (2016) have also same findings.

The coefficient of gender of household head is significantly negative only for male sample. It means that in male headed households the likelihood of getting more education is lower for male child. The coefficient of household head age indicates that the positive impact is significantly almost same for both genders. The impact of father's and mother's education is positive and significantly almost equal in both cases. These findings are in line with Parker (2000), Hashmi *et al.* (2008), Blanc (1996) and Khan and Khan (2016).

The coefficient of dependency ratio and land ownership is insignificant for both gender means that these two variables have no significant role in educational gender disparities. The impact of total assets on child educational attainment is positive for both genders but significant only for male which shows that if assets of the households increase, it will increase the chances of attaining higher education only for male child. In case of male, the coefficient of income is positive but insignificant while in case of female, it is significantly negative. It means that as household income increases the probability of education decreases for female child. The justification for the negative impact of household's income on female education level is that rich people of rural

areas are more inclined toward socio-economic aspects. These results are in link with the findings of Patrinos and Psacharopoulos (1997) and Khan and Ali (2003).

The impact of region is significantly positive and almost same for both genders but slightly higher for male means that male children in urban region have slightly more chances to get education than female. The coefficient of Khyber Pakhtunkhwa dummy is negative in both gender but only significant in female sample. It means that in Khyber Pakhtunkhwa gender disparity in education is very high and females' children of Khyber Pakhtunkhwa have fewer chances to get higher education level. In Khyber Pakhtunkhwa the educational attainment is lower for female because of law and order situation, social norms and people attitude toward female education. In Baluchistan province, the chances of higher level of education is little more for female than male. In Baluchistan, the data is taken only from economically developed areas and ignored the remote areas. Therefore, the results are biased toward female education. The results of Holmes (2003) and Sajid and Khan (2016) are supporting our findings.

Distance to school almost has same negative effect on education level of both male and female. The impact of distance is negative because the availability of school facility played an important role in child educational attainment. The impact of school fee is significantly positive only for male child while the effect of school type is only positive for female significantly. These findings are consistent with the findings of Kelley (1995), Alderman *et al.* (1996), Holmes (2003), Kingdon (1996), Frenette and Chan (2015) and Colemon and Hoffer (1987).

Table 5.4: Gender Level Estimates of Censored Ordered Probit Model

Variable	Male			Female		
	Coefficient	*St. Error*	*P-Value*	*Coefficient*	*St. Error*	*P-Value*
Constant	*-1.9402*	*0.1838*	*0.000*	*-2.4232*	*0.2234*	*0.000*
Child Age	*0.2218*	*0.0315*	*0.000*	*0.2782*	*0.0367*	*0.000*
Child Age^2	*0.0107*	*0.0012*	*0.000*	*0.0071*	*0.0014*	*0.000*
Gend of Head	*-0.1256*	*0.0501*	*0.012*	*-0.0263*	*0.0578*	*0.649*
Age of Head	*0.0057*	*0.0012*	*0.000*	*0.0024*	*0.0013*	*0.070*
Father Edu	*0.0860*	*0.0110*	*0.000*	*0.0900*	*0.0133*	*0.000*
Mother Edu	*0.1554*	*0.0275*	*0.000*	*0.1277*	*0.0269*	*0.000*
Depend Ratio	*-0.0173*	*0.0134*	*0.195*	*-0.0198*	*0.0159*	*0.213*
Agricul Land	*-0.0485*	*0.0393*	*0.217*	*0.0152*	*0.0534*	*0.776*
lntotal Assets	*0.0066*	*0.0026*	*0.012*	*0.0045*	*.0030*	*0.139*
lnincome	*0.0054*	*0.0040*	*0.179*	*-0.0119*	*0.0051*	*0.021*
Region	*0.1093*	*0.0336*	*0.001*	*0.0858*	*0.0361*	*0.018*
D - KPK	*-0.0291*	*0.0339*	*0.390*	*-0.1265*	*0.0342*	*0.000*
D - Sindh	*0.0550*	*0.0343*	*0.101*	*-0.0292*	*0.0391*	*0.454*
D-Baluch	*0.2734*	*0.0604*	*0.000*	*0.6274*	*0.1151*	*0.000*
Dist up to 5Km	*-0.7290*	*0.1239*	*0.000*	*-0.9147*	*0.1867*	*0.000*
Dist 6 - 10Km	*-0.4221*	*0.1281*	*0.001*	*-0.5799*	*0.1993*	*0.004*
Dist 10+ Km	*-0.1141*	*0.1357*	*0.400*	*-0.3242*	*0.2095*	*0.122*
lnschool Fee	*0.0404*	*0.0199*	*0.043*	*-0.0163*	*0.0239*	*0.495*
School Type	*-0.0287*	*0.0499*	*0.565*	*0.2091*	*0.0564*	*0.000*
Sample size	*17,289*			*13,224*		

Source: Author's calculation

5.4.3 Estimates of Region Based Analysis

In order to see regional disparities in child educational attainment, we conducted separate analyses for both regions i.e. urban and rural and the results are reported in table 5.5. Individual level characteristics of child, i.e. gender, age and age square has almost same impact on education level in both regions but the impact of age is slightly more for urban sample. It means that in urban area, if the age of the child increases the probability of getting education also increase at higher rate than rural area. Our findings support the results of Khan and Khan (2016) and Liu (1998).

The coefficient of household head gender is significantly negative for rural areas only, which means that head gender is only important in rural region where its role is negative for child educational attainment. The age of household head has more or less the same significant positive impact on child educational attainment in both regions. The effect of father's and mother's education is positive and highly significant in both regions but the impact of father education is more in urban region while the impact of mother education is higher in rural region. It means that in urban areas, educated father increases the chances of their children's education while in rural areas, children of educated mother have more chances than their urban counterparts to get higher education. These findings are comparable with that of Moock (1991), Maitra (2001), Conlisk (1969), Khan and Khan (2016) and Olaniyan (2011).

The Dependency ratio has no significant role in regional disparities in child educational attainment because the coefficient is insignificant for both samples. The coefficient of ownership of agriculture land by household is significantly positive in urban areas while significantly negative for rural areas. It means that in urban area, if the household owned agricultural land, the probability of getting education for their

children will be more. On the other hand, if rural household owned any agriculture land, the probability of their children's educational attainment will be lower. The reason is that rural household may include their children in agricultural activities. The impact of total assets is positive in both areas but it is significant only for rural areas means that the possibility of attaining higher education is higher for a child who belongs to rural household having assets. The income of household has statistically insignificant impact on child educational attainment in both regions but negative for urban and positive for rural sample. Our results are in line with that of Holmes (2003), Kalfa et al. (2017), Sajid and Khan (2016), Hashmi et al. (2008).

The negative impact Khyber Pakhtunkhwa dummy is significantly negative only for urban sample means that the probability of switching from lower education level to higher education level is lower for child belongs to Khyber Pakhtunkhwa in urban region. The dummy of Sindh is insignificant with positive sign for both urban and rural areas. The coefficient of Baluchistan dummy is significantly positive and almost same in both regions means child who belongs to Baluchistan possibly get more level of education irrespective of region to which he or she belong. The results of Holmes (2003) and Sajid and Khan (2016) are supporting our findings.

The distance to school has significantly negative effect on child educational attainment up to 10 kilometers, after that distance to school becomes less effective in determining child educational attainment for both rural and urban areas but the effect is little more for rural areas. It means that child educational attainment in rural areas is more adversely affected by distance to school than that of urban areas. The coefficient of the school type is negative and insignificant for urban areas but positive and significant for rural areas means child enrolled in rural private school may get more

levels of education. These results are similar to the results of Zhao and Glewwe (2010), Hashmi et al. (2008), Sajid and Khan (2016), Buckingham (2000) and Coleman and Hoffer (1987).

Table 5.5: Estimates of Censored Ordered Probit Model at Regional Level

Variable	Urban			Rural		
	Coefficient	*St. Error*	*P-Value*	*Coefficient*	*St. Error*	*P-Value*
Constant	*-4.8027*	*3.036*	*0.114*	*0.5841*	*0.224*	*0.009*
Child Gender	*0.0945*	*0.025*	*0.000*	*0.0873*	*0.030*	*0.004*
Child Age	*0.2790*	*0.042*	*0.000*	*0.2357*	*0.029*	*0.000*
Child Age^2	*0.0093*	*0.001*	*0.000*	*0.0083*	*0.001*	*0.000*
Gend of Head	*-0.0830*	*0.070*	*0.241*	*-0.0820*	*0.047*	*0.084*
Age of Head	*0.0056*	*0.002*	*0.010*	*0.0036*	*0.001*	*0.002*
Father Edu	*0.1050*	*0.015*	*0.000*	*0.0772*	*0.011*	*0.000*
Mother Edu	*0.1277*	*0.024*	*0.000*	*0.1609*	*0.037*	*0.000*
Depend Ratio	*-0.0188*	*0.022*	*0.404*	*-0.0186*	*0.013*	*0.156*
Agri Land	*0.1211*	*0.062*	*0.050*	*-0.0741*	*0.039*	*0.060*
lntotal Assets	*0.0046*	*0.003*	*0.139*	*0.0066*	*0.002*	*0.016*
lnincome	*-0.0082*	*0.006*	*0.220*	*0.0007*	*0.003*	*0.850*
D - KPK	*-0.1173*	*0.038*	*0.002*	*-0.0241*	*0.033*	*0.464*
D - Sindh	*0.0233*	*0.041*	*0.571*	*0.0313*	*0.039*	*0.428*
D-Baluch	*0.3827*	*0.108*	*0.000*	*0.4168*	*0.077*	*0.000*
Dist upto 5Km	*-0.8850*	*0.168*	*0.000*	*-0.7981*	*0.141*	*0.000*
Dist 6-10Km	*-0.6415*	*0.186*	*0.001*	*-0.4320*	*0.145*	*0.003*
Dist 10+ Km	*-0.2224*	*0.188*	*0.237*	*-0.1738*	*.0150*	*0.249*
ln School Fee	*0.0374*	*0.030*	*0.215*	*-0.0089*	*0.023*	*0.701*
School Type	*-0.0347*	*0.067*	*0.608*	*0.2109*	*0.059*	*0.000*
Sample Size	*11782*			*18731*		

Source: Author's calculation

CHAPTER 6

CONCLUSION AND POLICY RECOMMENDATIONS

The objective of the study is to investigate the socio-economic determinants of child educational attainment in Pakistan. To accomplish the objective, multidimensional nationally representative data of Pakistan Social and Living Standard Measurement (PSLM), survey 2013-14 is used. The study considers the children of age 5-18 years who are currently either attending school or attended school in past. To estimates socio-economic factors censored ordered probit model is implemented which is an advanced form of ordered probit model. In order to see the factors responsible for gender and regional disparities in child educational attainment, separate regressions are carried out for both genders (male and female) and regions (urban and rural).

The results of the overall model reveal that gender and age of child have significant positive impact on his/ her educational attainment in Pakistan. The impact of head gender is negative while age of the head has positive impact on child educational attainment in Pakistan. The parental education positively affects child educational attainment but the impact of mother education is more pronounced than father education, which suggests that educated mothers play an important role in educating their children. Household income, dependency ratio and land ownership has no significant impact on child educational attainment while assets of the household positively affect child educational attainment in Pakistan. Children who are living in urban areas are more likely to get higher education. The impact of Khyber Pakhtunkhwa and Sindh dummies are insignificant but the impact of Baluchistan dummy is significantly positive. One of the main reasons of positive impact of Baluchistan dummy is that in the survey the sample was only collected from advanced areas due to

law and order situation. The impact of distance to school on child education is negative while school type positively affect child educational attainment in Pakistan. The effect of school fee on child educational attainment is insignificant

Gender wise specific analysis shows that, with increase in age the probability of getting higher education increases in male as compare to female. The gender of household head has significantly negative impact only for male child. The impact of parental education is more or less same for both genders. The impact of total assets on child educational attainment is positive for both genders but significant only for male which shows that if assets of the households increase, it will increase the chances of attaining higher education only for male child. The coefficient of income is significantly negative only for female means that as household income increases the probability of education decreases for female child. The impact of region is slightly higher for male means that male child in urban region has slightly more chances to get education than female child. The coefficient of Khyber Pakhtunkhwa dummy is negative for both but only significant in case of female sample. It suggests that in Khyber Pakhtunkhwa gender disparity in education is very high. In Baluchistan province, the chances of higher level of education is little more for female than male. The impact of school fee is significantly positive only for male child while the effect of school type is only positive for female significantly.

To examine regional wise differences in child educational attainment, we conduct separate regressions for both regions i.e. urban and rural. Individual level characteristics such as gender, age and age square has almost same impact on education level in both regions but the impact of age is slightly more for urban sample. The coefficient of household head gender suggests that head gender is only important in

rural region where its role is negative for child educational attainment. The effect of parental education is positive and highly significant in both regions but the impact of father education is more in urban region while the impact of mother education is higher in rural region. The impact of agriculture land ownership is significantly positive in urban sample while significantly negative for rural sample. The impact of total assets is positive in both areas but it is significant only for rural areas. It means that the possibility of attaining higher education is higher for a child who belongs to rural household having more assets. The negative impact Khyber Pakhtunkhwa dummy is significantly only for urban sample means that the probability of switching from lower education level to higher education level is lower for child belongs to Khyber Pakhtunkhwa in urban region. The distance to school has significantly negative effect on child educational attainment up to 10 kilometers, but the effect is little more for rural areas. It means that child educational attainment in rural areas is more adversely affected by distance to school than that of urban areas. The variable school type is only positive and significant for rural areas means child enrolled in rural private school may get more levels of education.

On the basis of the findings of the study, following policy recommendations are made.

i. In order to increase child education in Pakistan, there is a need of reducing gender differences in education by providing educational facilities to female and by increasing the value and importance of female education in society.

ii. There is a need of increasing higher education specially for female children by taking different steps i.e. increasing girl's schools and educational institutions, increasing awareness about female education in society etc.

iii. Our findings also suggest that by increasing the mother education level, the child education level could also increase especially female education in Pakistan.

iv. The study also suggests that distance to school is an important determinant of child education. Therefore, to increase child education level, the distance to school should be reduced by building new schools.

v. Quality of school is an important determinant of child educational attainment in Pakistan. School attainment in non-government schools is higher. There is a need of improving quality of government school to increase child educational attainment in Pakistan.

vi. General awareness about the value of education should increase so that people give more attention to educating their children.

The future direction of the study is that there is a need of provincial wise study at disaggregate level to explore the differences in child educational attainment among provinces. Further there is a need of national wise study which also includes observation from FATA, Gilgit Baltistan and Islamabad Capital Territory. The future direction of the study can be covered by continuing the PSLM and by including more primary and secondary sampling units to make it wide.

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